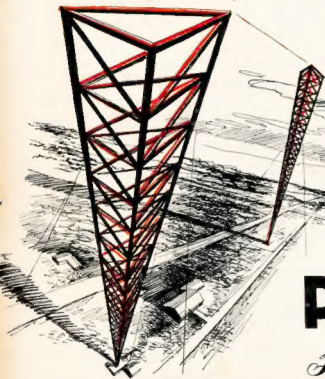


AMATEUR RADIO

JULY
1948

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



PHILIPS

Famous for TRANSMITTERS • TRANSMITTING
COMPONENTS • TRANSMITTING
TRIODES, TETRODES AND PENTODES • HIGH VACUUM
AND MERCURY VAPOUR RECTIFIERS.

PHILIPS ELECTRICAL INDUSTRIES OF AUSTRALIA PTY. LTD.



FOR THE EXPERIMENTER & RADIO ENTHUSIAST

Registered at G.P.O., Melbourne, for transmission by post as a periodical.

6d.

Do You Know?

or have you yet to find out?
*A Receiving plant laid out like this
block drawing DOES Get RESULTS*

KINGSLEY
K/s 9'er
Signal Booster

KINGSLEY
6-Metre Converter
KF / C6

KINGSLEY
AM/FM (NB)
Adaptor

THE KINGSLEY *Narrow Band* F.M. ADAPTOR



**Your
Communication
Receiver**

The Kingsley narrow band F.M. Adaptor (illustrated here) is intended for use with any communications type or dual wave receiver with a final I.F. frequency of 455 KC's and a signal tuning range covering the 20, 11 and 6 metres bands or higher frequencies, and consists of a Cathode follower to couple to the receiver I.F. Channel, a limiter and a phase difference discriminator giving Audio frequency output, to be coupled back to the Audio frequency Channel input Circuit.

When ordering please designate type required:—KA1 or KA2—the latter having been developed for use with the ART Communication Receiver.

Read the Article in the May issue of this Journal giving full description of this Amazingly Successful Unit.

FM Adaptor

£2/16/0. Valves extra.

Signal Booster ES/5/0 plus tax.

Valves extra.

6 metres Converter EG/18/6 plus tax.

Valves extra.

Important

If your usual supplier is unable to supply your requirements of Kingsley products —drop us a line mentioning his name and address.

Ask for—Insist on—DEMAND—genuine Kingsley Parts from your supplier !



KINGSLEY RADIO

KINGSLEY RADIO PTY. LTD.

380 St. Kilda Road, Melbourne, Victoria . Phones: MX 1159, MX 3653

AMATEUR RADIO

EDITOR:

T. D. HOGAN, VK3HX,
Telephone: UM 1732

MANAGING EDITOR:

J. G. MARSLAND, VK3NY

TECHNICAL EDITOR:

J. C. DUNCAN, VK3VZ

ASSISTANT TECHNICAL EDITOR:

A. K. HEAD,

COMPILATION:

R. W. HIGGINBOTHAM, VK3RN

DISTRIBUTION:

H. N. STEVENS, VK3JO

ADVERTISING REPRESENTATIVE:

W. J. LEWIS,

20 Queen Street, Melbourne, C.I.

Telephone: MU 5154

Printers:

H. HEARNE & CO. PTY. LTD.,

285 Latrobe Street, Melbourne.

MSS. and Magazine Correspondence should be forwarded to the Editor, "Amateur Radio,"

LAW COURT CHAMBERS,

191 Queen Street, Melbourne, C.I.

on or before the 15th of each month.

Subscription rate is 6/- per annum, in advance (post. paid).

Wireless Institute of Australia (Victorian Division) Rooms. Telephone FJ 6997.

— IN THIS ISSUE —

One Tube Preamplifier—The "R-8'er"	3
Propagation of Radio Waves, Part I	5
New Electrical Standards	7
The ART for Ham Bands	8
Questions and Answers	11
Short Circuits	12
Fifty and Up	12
Federal, QSL and Divisional Notes	14

Published by The Wireless Institute of Australia,
Law Court Chambers, 191 Queen Street,
Melbourne, C.I

EDITORIAL



In this issue you will find the official announcement of the formation of the Post-War R.A.A.F. Radio Reserve. This information will be received with satisfaction by a great number of Australian Amateurs who served in the R.A.A.F. during the War. The offer of the W.I.A. to assist in launching the plan and recruiting personnel has been accepted by the R.A.A.F., thus the W.I.A. is in a somewhat similar position to that of 1929, when the original R.A.A.F. Wireless Reserve was launched. On that occasion, the conception of such a Reserve emanated from the W.I.A. was accepted by the R.A.A.F., and up to the outbreak of War, the Wireless Reserve was a consistent W.I.A. activity. This time, although the W.I.A. occupies an analogous position, the scope and aims of the project are on a scale never dreamt of in the pre-war days. Then, a Reserve of 200 was considered a very valuable contribution; today, the R.A.A.F. seeks 2,000. Then, the Service was seeking only Amateurs' skill as telegraphists; today, this qualification is of small moment. It is technical aptitude, ability and knowledge that is sought.

The reasons for this changed requirement are of considerable interest. Before the last war, the value of radio generally, in time of war, appeared to be its inherent ability to provide communications between two points without the necessity of running landlines or cables, or between such points where line communication was impossible. The war brought an entirely new conception of the vital part which radio could play, with the introduction of Radar, the amazing growth of Radio Navigational devices and the building up of complex operational systems, such as Fighter Control. At the same time, with the war being fought on a global scale at an ever-increasing tempo, the inadequacy of the morse code as a method of conveying intelligence between two points became apparent. It was too slow, required too many personnel, with specialised operator training and took up too

many channels in a very much overloaded frequency spectrum. An interim solution for main point to point circuits was provided by the introduction of multi-channel radio-tele-type systems and extended use of R/T for "hot" operational channels. The major problems still remained, however, and with the post-war development of atomic weapons, supersonic rockets and aircraft, are further accentuated. It is outside the scope of this Editorial to discuss future Service Radio operational requirements, but sufficient has been said to indicate clearly why morse code proficiency is no longer a basic radio requirement.

In the technical and administrative field lies the major contribution which Amateur Radio can make to the R.A.A.F. Radio Reserve. It has often been said, however, and quite correctly too, that the technical standard of the average Amateur is fairly low. As Amateur Radio is a hobby and not the life's work of the majority of Hams this fact is understandable and appreciated. However, to have interested himself in radio sufficiently to pass the necessary examination and secure a station licence is a definite indication of technical aptitude, and technical aptitude plus well directed training spells technical proficiency. Another aspect that must not be forgotten is that the average Ham has a wealth of practical experience, the value of which was proved countless times during the war. Part of the task of the Radio Reserve, therefore, is to take an Amateur, build on his practical experience by familiarising him with Service equipments, and through properly training, to fill in the gaps in his technical knowledge. This is only half the story, however, as one of the great features of the plan is the complete integration of the Radio Reserve with the R.A.A.F. at all levels. Amateurs will be trained in accordance with their qualifications, Service and general experience for appointments ranging from Senior Staff positions in the Directorate of (Continued on page 8)

Homecrafts

PTY. LTD.

Keen Bargains for Radio Amateurs



STREAMLINED

Speaker Boxes as illustrated. With Brown Crackle Finish—suitable for Speakers up to 8 inch 25/-.



Miniature Gang Condensers: 2 gang 19/9; 1 gang, 13/6; 3 gang, 25/- as illustrated.



American Imported .5 Shielded Suppressor Condensers. As illustrated. Cut to 1/11.



Noise Suppressor Condensers. As illustrated. 2 x .1 in Metal Case with leads. Cut to 2/11



12 Volt Non-Synchronous Vibrators. Standard Type 4 pin. Cut to 12/11.



BLOCK CONDENSER BARGAINS!

.02 8000V. Working Only 2/6	.25 1000V. Working. Only 3/6.	.25 6000V. Test. Only 5/-.
.5 500V. Working. Only 5/11	.1 mfd. 1500V. Working. Only 2/11.	1 mfd. 800V. Test. Only 3/11.
.1 6000V. Test Only 3/11.	4 mfd. 450V. Working. Only 2/6.	2 mfd. 800V. Test. Only 4/3.



Amplifier Cabinet, complete with Chassis.—

Small size for up to a 15 watt Amplifier, 60/-.

Large size for up to a 30 watt Amplifier and over, 72 9.



The Latest Palec Modulated Oscillators.—

Type MO without Output Meter, £32/17/6.

Type MO1 as illustrated with Output Meter, £37/10/-

Your old Test Equipment Traded in, and Terms Arranged.



DON'T MISS THIS OUTSTANDING VALUE.

5B1 Cathode Ray Tubes. Originally Cost £15. Now 37/6 plus Sales Tax. Circuit Diagram to Build Oscilloscope 1/6.

2X2 High Vacuum Rectifier, 15/- plus sales tax.

Type 584 Gas Triode, 29/6 plus sales tax.



Sockets to suit 5B1 Bakelite Moulded, with Silver Plated Contacts, 9/6.

Special Snap Bargains

6 Volt Synchronous Vibrators. Reduced from 26/- to 13/11.

100 Watt Electric Soldering Iron. Reduced from 29/6 to 15/11.

Hundreds of other
Bargains await
your inspection)
at
Homecrafts

Portable Loop Aerials. Reduced from 5/6 to 2/11.
Aerial RF and Oscillator Coils. Iron Cored. Permatune. Reduced from 8/6 to 3/11.

Large 7 Valve Drilled Steel Chassis. Reduced from 18/- to 6/11.
Type K32 Palec Meters. 0-50 MA. Reduced from 55/- to 17/11.

290 Lonsdale Street, Melbourne

Also at Ballarat, Geelong, Hobart, Launceston, Burnie, Sydney & Newcastle

One-Tube Preamplifier—The "R-9'er"

The "R-9'er," which has become quite well known in Australia, is re-printed from G.E.'s "Ham News" by the request of quite a number of members. We are indebted to VK2AGH for furnishing the Magazine Committee with this information.

Are you having trouble picking those weak DX signals out of the noise? The "R-9'er," using a single 6AK5 miniature tube, is designed to do exactly that. The "R-9'er" is an electronic impedance-matching device and a broad-band preamplifier, designed to work primarily on the 28 and 50 Mc. bands.

PERFORMANCE CHARACTERISTICS

The gain which can be achieved by this unit depends upon how well your antenna is matched to your receiver, but the minimum gain which may be expected is 30 decibels—about 5 S points! This gain comes about in two ways. The "R-9'er," once it is tuned, automatically matches your receiving antenna to your receiver. In the usual Ham shack this problem is not given much consideration, but a tremendous gain can be obtained by a proper match. The problem is doubly important on the 28 and 50 Mc. bands, as at these frequencies the input impedance of the receiver may vary widely from its stated value. For example, a widely known communication receiver, stated to have an input impedance of 250 ohms, actually had an input impedance of 1500 ohms on 28 Mc. Tests made recently show that the average gain experienced, merely by properly matching the receiving antenna, is from several db. as high as 30 db.

In addition to this gain, the 6AK5 miniature tube acts as a broad-band r.f. amplifier stage, giving an additional gain of approximately 30 db. This tremendous gain is possible only because of the electrical characteristics of the 6AK5. This tube has a transconductance of 5000 micromhos, which means that

a voltage gain of approximately 35 can be achieved with a plate load of 7000 ohms, as used in the "R-9'er." This amount of gain has been available only by former tubes at narrow band-widths and with higher noise levels. The 6AK5 has been designed to give these high gains at wider band-widths and at lower noise levels.

Here then is what the "R-9'er" will do for you—60 decibels gain (or more) if your present receiving antenna is not matched, or, assuming it is perfectly matched, a 30 decibel gain. In tests conducted at WARDL's shack, "R-9'er" brought in signals which couldn't ordinarily be heard even with the use of the b.f.o.

CIRCUIT DETAILS

Referring to Fig. 1, the circuit consists essentially of a broad-tuned grid and broad-tuned plate circuit, a standard cathode bias system, and an adjustable screen supply. The grid and plate circuits are identical except that capacitor C5 is employed as a plate blocking capacitor so that the plate tuning capacitor may be grounded.

In the grid circuit, capacitors C1 and C2 form the impedance matching network. A regular two-wire transmission line from the receiving antenna is

brought to the input terminals, or a single wire antenna may be used and connected to the input lead which connects to the junction of C1 and C2. Inductance L1 must be tunable so that resonance may be achieved after C2 has been adjusted to match the antenna. Once C2 and L1, as well as C7, and L2, have been set, no further tuning is re-

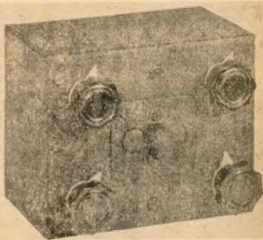


Fig. 2—Front view of the "R-9'er."

quired for operation on that particular band.

With the constants shown, the "R-9'er" will match any input and output between 16 ohms and 2700 ohms. This may be calculated:

$$\text{Impedance} = \frac{7000}{\left[\frac{C1 + C2}{C1} \right]^2}$$

The same formula may be applied to the plate side by substituting C6 for C1 and C7 for C2.

All constants given must be strictly adhered to in duplicating the "R-9'er," as even the values of the by-pass capacitors are important. R1 and R5 must be 7000 ohms, as the band-width will be altered and the impedance formula changed if different values are used.

The band-width of the "R-9'er" with the constants as shown is approximately two megacycles on ten meters (28-30 Mc.) and five megacycles on six meters (50 to 55 Mc.), dropping off only one or two db. at each end of the band when it is peaked in the centre of that band-width.

The plate voltage is not critical, and any voltage available in your receiver will operate the 6AK5 satisfactorily.

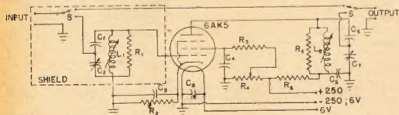


Fig. 1—Circuit Diagram of the "R-9'er"

- C1, C6—5 pF. fixed ceramic*.
- C2, C7—100 pF. variable.
- C3, C4, C5, C8—500 pF. 400 volt mica.
- L1, L2—Slug-tuned ceramic formers.
- 14 Mc.—See text.
- 28 Mc.—16 turns of No. 26 enamel close wound.
- 50 Mc.—8 turns of No. 26 enamel close wound.

- R1, R5—7000 ohm, 1 watt†
- R2—200 ohm, 1 watt.
- R3—15000 ohm, 1 watt.
- R4—25000 ohm, 4 watts potentiometer.
- R6—10000 ohm, 1 watt.
- S—D.P.D.T. wafer switch.

* See text.

† Refer to text for location of resistors.

CONSTRUCTIONAL DETAILS

The "R-9'er" is built in a 3" x 4" x 5" box, with all component parts mounted on the front panel. Fig. 3 shows the essential details of construction. The switch, S, and the potentiometer, R4, are the two controls on the upper part of the front panel, with capacitors C2 and C7 being mounted directly beneath.

The coil box occupies the central portion of the box, and is so arranged that the main support on the coil form, a piece of 7" by 1 1/2" aluminum, 1/8" thick, just fits into the central shield on the box, which is also made of 1/8" thick aluminum. With the coil plugged into the "R-9'er", a solid shield is thus formed which completely isolates the grid section from the rest of the circuit. It is very important to have complete shielding between grid and plate. The polystyrene base on the coil is 1 1/2" by 1 1/2", and the aluminum front of the coil

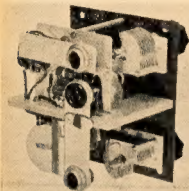


Fig. 3—Rear view of "R-9'er" on its side showing constructional features.

measures 2" by 1 1/2". One corner is cut on the polystyrene base in order to provide a method of keying the coils for proper insertion. The cut-out in the panel is sufficiently keyed. The coil forms are mounted on a thin piece of aluminum (see Fig. 4) so that the centre of the grounding strip contacts a grounding spring mounted on the 1 1/2" aluminum shield. This grounding spring is identical to the one shown in Fig. 3 which is mounted on the rear of the shield. The purpose of the latter spring is to contact the inside of the box, in the rear, for good grounding.

The pins on the coil fit into two crystal sockets. These sockets are mounted on the 1" wide aluminum shield.

The 6AK5 tube is mounted horizontally. Fig. 3 shows how the grid pin on the tube socket projects on one side of the shield with the remainder of the pins on the other side of the shield. Switch S, is mounted on the shield. The input connection is mounted on a third shield which cuts through the centre of switch, S, shielding the input and output circuits.

Placement of parts is not too critical if adequate shielding is maintained. Lack of shielding may cause unwanted regeneration and possible spurious oscillations.

OPERATING ADJUSTMENTS

Input and output connections should be made to the "R-9'er" with well-insulated wire, preferably co-axial cable. Switch S, should be set so that the amplifier is cut out, and the receiver tuned to a signal in the approximate centre of the band. A local signal is preferable. The amplifier should then be cut in by the switch, the screen potentiometer adjusted to give maximum voltage, and the grid condenser (C2) tuned together with L1 until the signal is heard. The signal should then be peaked with an R-meter or an output meter by tuning L1, adjusting C2, retuning L1, re-adjusting C2, etc., till the signal is maximum. This process should be repeated with the plate circuit, C7 and L2.

If C1 is found to be at full maximum or minimum capacity, the length of the antenna feeder must be altered. Conversely, the length of the line between the "R-9'er" and the receiver must be altered if C7 does not tune near its middle capacitance. To correct this situation, add a quarter-wave length of line and prune this line until the capacitor peaks the signal at approximately centre scale. For 50 Mc. operation the output line should be as short as possible, to ensure minimum capacitance on the output side.

After the entire unit has been peaked, the screen potentiometer (R4) should be adjusted for maximum output, keeping the voltage on the 6AK5 screen as low as possible, with output as high as possible. Once all adjustments are made for both coils, it is only necessary to peak capacitors C2 and C7 when changing bands, as the coils remain at resonance after once being adjusted.

Coil data for L1 and L2 is given for only 28 and 50 Mc. operation, although the unit will operate on any band.

THE "R-9'er" FOR 14 Mc.

The coils are the most important part of the pre-amplifier. Unless the coils are of a sufficiently high Q, very little gain may be achieved. This is because the band-width of the "R-9'er" is jointly dependent upon the Q of the coil, the resistance across the coil and the distributed capacitance in the circuit. It is desirable to have a coil with a sufficiently high Q that the band-width is effectively independent only upon the resistance across the coils and the distributed capacitance. (R1 and R5, referring to the original diagram.)

Coils wound with a large diameter wire which is poorly insulated will have a low Q. Similarly, the Q will be lowered if it is necessary to overwind the coil, that is, if more than one layer of wire is used. High Q coils will be achieved if the wire is of a diameter which will allow the proper number of turns to fit exactly on the coil form in one layer. It is very important also that the wire be well insulated. Silk-covered wire would be preferable. Avoid enameled wire if the enamel seems the least bit cracked or worn.

The "R-9'er" will work on 14 Mc. but it will be necessary to make several minor changes if optimum performance is to be realised. The first change should be to remove R1 and R5 from the cir-

cuit. These should be replaced in duplicate on the 28 and 50 Mc. plug-in coils and wired directly across L1 and L2. In other words, L1 and L2 on the 28 Mc. coil should each have a 7000 ohm resistor added in parallel to them. The 50 Mc. coil should be changed similarly.

It is necessary to make this change as the 14 Mc. coils will require a different resistance in parallel and it is necessary to remove the internal resistance in order that the proper resistance will be added to the circuit automatically when coils are changed.

The 14 Mc. coil should be wound with 25 turns of very small wire. As explained before, this wire should be small enough to allow all 25 turns to be placed in one layer. The resistance to be added across the coil will now depend upon the Q of the coil in the circuit. For example, if the coil Q is 100, the resistance to be added across both coils should be 25000 ohms. For a Q of 75, 36000 ohms should be added. For a Q,

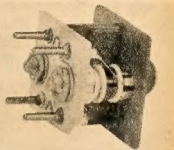


Fig. 4—View of "R-9'er" Coil Box (note that Coil is mounted on a Polystyrene base).

of 50, the resistance should be omitted entirely.

Inasmuch as very few of us will be able to measure the actual Q, it is suggested that the resistance be omitted entirely on the 14 Mc. coils. If the "R-9'er" then seems to be too sharp and covers too narrow a band, resistors should be added across L1 and L2 on the 14 Mc. coil until the band-width is approximately 1 megacycle. The band-width can be judged roughly by tuning the receiver across the band and listening for the slight amount of background noise which indicates that amplification is being achieved. When the increased background noise covers approximately one megacycle on the dial the band-width may be considered to be approximately one megacycle. After resistors have been added which broaden out the band-width to this value, the coils should be properly adjusted.

Another change that is suggested for operation on 14 Mc. is to make C1 and C6 10 pF. instead of 5 pF. This change will give added sensitivity on 14 Mc. and will not affect operation on 28 and 50 Mc. appreciably.

With changes made as described above the "R-9'er" will give appreciable gain on the 14 Mc. band, although it will not be as great as that obtained on 28 and 50 Mc.

Propagation of Radio Waves

BY N. S. SMITH*, VK3YY

* Although not 100% practical, it was thought that a brief article on the factors governing the propagation of radio waves might be of interest to those who have not had time to study this aspect of radio. An understanding of propagation fundamentals helps one to visualise why the bands go dead at times, why fading occurs, and other phenomena.

It is proposed to condense this into two articles although the subject could cover much wider fields.

- 1 (a) Basic nature of a radiated wave.
- (b) Propagation at medium frequencies (550-1600 Kc.).
- 2 (a) Propagation in the range 3-30 Mc.
- (b) Propagation above about 30 Mc.

1a.—A radio wave propagated from an aerial consists essentially of two components:—

- (i) A field parallel to the radiator and termed the "electrostatic," "static" or "electric" field.
- (ii) An electromagnetic or magnetic field at right angles to (i) also termed "induction field."

These two fields at right angles to one another are also at right angles to the direction of propagation of the wave. This sounds complicated, but Fig. 1 will help in understanding this point. This illustration should be considered as a section of the radiated

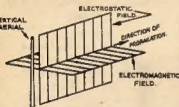


FIG. 1

wave, which actually exists all around the aerial. The "induction field" (ii) dies away fairly rapidly, inversely proportional to the square of the distance from the aerial. In other words if the signal is of a certain value at a distance "d," it is only one-quarter

$$\left\{ \begin{array}{l} \frac{1}{d^2} = \frac{1}{2^2} = \frac{1}{4} \end{array} \right\}$$

as strong at twice the distance (2d). It is thus considered as contributing but slightly to the radiated signal value at a distance.

The "static" or "radiation field" is the useful radiation from an aerial and its value varies *inversely* as the distance, that is, at twice the distance it is half as strong. A term commonly used in referring to a radiated signal is "polarisation." This merely indicates the plane in which the "radiation field" lies, thus since this field is the one parallel to the aerial, a vertical aerial radiates a vertically polarised signal, and a hori-

zontal aerial a horizontally polarised signal. Actually, after the wave has travelled some distance from the aerial the polarisation may become more complex due to reflections from the ground etc.

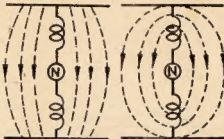


Fig. 2a.
Field building up.

Fig. 2b.
Start of collapse of field.

It is rather difficult to explain briefly the process of radiation from an aerial, but the following elementary description may assist in visualising this complex action. When an aerial is connected to a transmitter it is supplied with alternating energy at relatively high frequencies. Thus the fields referred to above are building up and collapsing at a high rate. This means that the aerial is being fed with alternate positive and

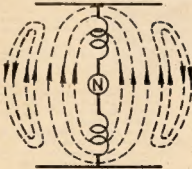


Fig. 2c.—Field of opposite polarity building up and causing radiation of part of previous field.



Fig. 2d.—Radiation of field from a grounded aerial in annular loops.

negative charges of electricity. It is a fundamental law that whenever the current flowing in a circuit changes, energy is radiated from the circuit in the form of electromagnetic waves, which travel out into space with the velocity of light. Thus in any alternating current circuit there is always a radiation of energy, the amount radiated being related to the frequency of the a.c., more energy being contained in high frequencies than in low.

Consider a positive half cycle of energy building up a field. After it has reached its maximum value it commences to collapse, and in doing so tends to change its direction (Lenz's Law). The negative half cycle however is now arriving at the aerial and commencing to build up a negative field, this is in the same direction as the collapsing field and tends to repel it from the aerial, giving rise to radiation. This process is repeated every half cycle and thus the energy is radiated from the aerial. Figures 2a, 2b and 2c illustrate this process.

A moment's thought will show that if the fields are changing at a slow rate (such as 50 cycles/sec.) there will be time for a full collapse of one half cycle before the other one builds up to reasonable strength. That is why radiation from power lines is relatively weak, increases through the audio frequency band, and improves rapidly as the radio frequency field is entered. Such is a brief elementary picture of radiation, in which, of course it will be appreciated, many factors are not considered.

1b. Propagation at medium frequencies (550-1600 Kc.).—The medium frequency band is useful in providing broadcast services up to about 80-150 miles radius, which area may be regarded as the primary service area of the station. Signals however are also received at several hundred miles distance at night time, providing a limited secondary service area. The primary service area is provided by what is termed "the ground wave." This is the wave propagated over the surface of the ground at low angles to the horizon, and thus requires an aerial having maximum propagation at low angles, and minimum "sky wave" radiation as explained hereafter.

* 14 Durham Road, Surrey Hills, E.10.

Fig. 3a shows the desirable radiation pattern for a broadcast aerial. Fig. 3b shows the radiation patterns of three aerials, $\frac{1}{4}$ wave, $\frac{1}{2}$ wave and $\frac{3}{4}$ wave. An examination shows that the 0.625λ ($\frac{3}{4}$) has a nice low angle major lobe, but unfortunately has an appreciable lobe at 60° . The half wave (0.5λ) has no high-angle lobe but has radiation at higher angles than the $\frac{1}{4}$ one. In practice it has been found that an aerial of 0.53 to 0.56 wavelength gives very good

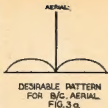


Fig. 4—Fading of Radio Signals (Medium Wave).

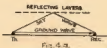


Fig. 4a.

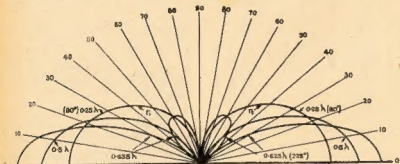


Fig. 3b—Radiation Patterns (Vertical Plane) for Grounded Vertical Antenna of 0.25 , 0.5 and 0.625 wavelength height (90 , 180 and 225 degrees).

characteristics with only a small radiation lobe at about 60° .

The reason for not desiring the high angle radiation is that it causes fading. The fact that it provides a secondary service area at night is not as important as the fact that it causes an area of severe distortion and fading which limits the primary service area of the station.

Fading occurs when the sky-wave and ground wave have comparable strengths. Fig. 4 will make this clear. Fig. 4a shows the paths to a receiving point of the ground and sky waves, and Fig. 4b indicates the way in which the signal strength varies. At point AA the sky wave is 50% of the ground wave and had fading commences; at point X the signals are equal and very severe fading will be experienced; at R the sky wave tends to take charge, the ground wave rapidly dying away.

Reference to Fig. 4a will indicate that at the receiving point, "Rec." the sky wave will have travelled a longer distance than the ground wave and there will thus be a phase difference between them and the signal received will be the algebraic sum of the two signals. The reflecting layers vary in height, as does their absorption, consequently the sky wave signal varies in intensity and also in phase difference, thus causing constantly changing degrees of fading.

In the daytime the reflecting layers are highly charged by the sun's radiation, and the sky wave is absorbed

without reflection. Thus in the daytime there is an absence of both fading and secondary service area.

The importance of reducing the sky-wave radiation from a medium-wave broadcast aerial is thus apparent.

Radiation and propagation in other bands will be discussed in a later article.

YOUR ATTENTION—PLEASE

Since the end of the war Federal Executive and the Victorian Division have been sharing the Post Office Box 2611W. It has now been decided that mail for the Victorian Division shall be delivered to the Rooms, and that F.E. will take over the Post Office Box.

For Box 2611W G.P.O., Melbourne:—

Federal Secretary.—All correspondence dealing with purely Federal matters.

Federal QSL Manager.—All correspondence dealing with QSL matters, applications for W.A.C. Certificates or Awards.

For "Law Court Chambers," 191 Queen Street, Melbourne, C.I.:—

Secretary, Victorian Division.—All correspondence concerning Victorian matters only.

Editor, "Amateur Radio."—All correspondence concerning the Magazine, Notes, Technical Articles, Contributions, and all matters relating to the financial and distribution aspects of the Magazine.

TWO SOLDERING IDEAS

A neat gadget for cleaning your soldering iron may be made as follows. Take an old phonograph needle cup, drill two small holes and screw it to the work bench. Pack it rather tightly with steel wool. A twist of the iron in the cup— presto, a nice clean iron. Secondly, on those hard-to-solder jobs where the iron is too small for the job in hand, try pre-heating the metal parts to be soldered with an electric hot-plate, toaster or other source of heat. The iron will not then have to lose so much heat, and the operation can be performed successfully.—QST, January, 1946.

Bright Star Radio

1839 LOWER MALVERN ROAD

GLEN IRIS, S.E. 6, Vic.

Phone: UL 5510

TAYLOR TRANSMITTING TUBES

Full Range
Crystals as illustrated



40 and 80 metre.
AT or BT cut. Accuracy 0.2% of your specified frequency.
£2/12/6.

20 metre zero drift, £5
Crystals Reground, £1 each

A.W.A. SPLIT STATOR
TRANSMITTING CONDENSERS, extra high voltage ceramic insulation.
£2/15/0 each.

Filament, Power and Modulation Transformers Constructed.
Prompt Deliveries.

Screw Type Neutralising Condensers (National Type) to suit all triode tubes, Polystyrene insulation, 19/6 each.

NEW ELECTRICAL STANDARDS

THE "ABSOLUTE" UNIT

Many of our readers will have heard of the impending change in the international standard for the Ohm, the Volt, the Ampere, etc., and may have read announcements that the laboratories of the world, including the National Physical Laboratory in England, the National Bureau of Standards in the U.S.A., and their equivalents in France, Germany and U.S.S.R. have adopted new values from the 1st January, 1948.

These new values, which are in accordance with decisions taken by the International Committee of Weights and Measures at Paris, in October, 1946, are termed "absolute" units and are based on the familiar centimetre, gramme, second (C.G.S.) system. They replace the existing "international" units.

The following table shows the change in values:—

1 international ohm	= 1.000495 absolute ohms
1 international volt	= 1.00033 absolute volts
1 international ampere	= 0.999835 absolute amperes
1 international coulomb	= 0.999835 absolute coulombs
1 international henry	= 1.000495 absolute henries
1 international farad	= 0.999505 absolute farads
1 international watt	= 1.000165 absolute watts
1 international joule	= 1.000165 absolute joules

Preparations for this change in Australia have already been made. It is known that the Australian National Standard Laboratory took action some

time ago to have their testing equipment calibrated on the new system, and an announcement describing the application of the change to Australian electrical standards is shortly expected.

SIGNIFICANCE OF CHANGE

In the first place, the values of these fundamental quantities are the foundation on which the entire structure of accurate electrical measurement is built. For some types of work, comparative values are quite sufficient, and comparisons can be made to a high degree of precision. But the engineer who relies on comparative values sooner or later comes up against the hard fact that there is no substitute for knowing where he stands in relation to the true, or accurate, value.

material and the efforts of many people. Once it is completed, the engineers make careful tests to measure the unit's efficiency. These tests form the basis for determining the machine's performance, and also serve as a guide towards the improvement of future machines. The difference in efficiency between successive machines is necessarily small; a slight error in measurement could mask improvements which the design engineer spent much effort in incorporating into the machine. The time between tests of the original machine and its improved counterpart may be two years; thus the measurements must be accurate in the true sense that they go back to fundamental standards and are not expressed on a day-to-day comparative basis.

In the second place, a careful engineer or physicist often makes checks by independent methods to verify the soundness of his assumptions. Those most concerned with accurate measurements have occasion to make similar tests to ascertain the validity of the units with respect to their relation to other units in the meter-kilogram-second system. For example, the force on two parallel current-carrying conductors is calculated from an expression embracing forces and lengths as well as electrical quantities. If the electrical quantities are not exactly determined, there will be an inequality in the equation.

Consider, for example, the building of a large turbine-generator. This job, a serious business, may take a year or more and requires large amounts of

ELECTRICAL SPECIALS

★ KINGSLEY 6-METRE CONVERTER - £9/8/11 Nett

- * Spare Plug—in Coil Boxes for Kingsley K/S 9'er. (6 and 20 metres) 15/- nett
 - * Complete range Kingsley Coils and IF's available.
 - * Jumbo 4 Pin Sockets, 12/6 each (plus Tax)
 - * Steatide Sockets, 4, 5 and 6 pin and Octal 5/- ea.
 - * Teylor Tubes Available.
 - * AMATEUR DISCOUNTS WHERE APPLICABLE.
- SOUTH OF THE YARRA HAMPS.—Keep on the beam by making our Prahran Store your Headquarters. Contact Fred Smith

VEALLS

★ TRANPO VALVE and CIRCUIT TESTER



The compact and convenient tester that is not only necessary to Radio Servicemen, but also to Radio experimenters! Reads milliamperes, D.C. and A.C. volts, output volts and tests resistors, condensers and valves.

PRICE £32/19/6 plus tax.

TERMS AVAILABLE.

243 Swanston Street, Melbourne
299 Chapel Street, Prahran

FJ 3145
LA 1605

Mail Orders Box 2141T, G.P.O., Melbourne.

Established 1911.

THE AR7 FOR HAM BANDS

BY C. H. CASTLE*, VK5KL

Many of us have been fortunate to obtain from Disposals the Australian-made Communications Receiver well known as the AR7. Main disadvantage of most of these Receivers was the high noise level to signal ratio, especially on the highest frequency band. After months of trying for optimum performance, the following improvements are suggested, taking each section individually, as was found to improve performance.

POWER SUPPLY As originally there was always trouble with the 6X5 rectifier, plate to cathode shorts, and constant blowing of fuses, and at times burning up of the Yaxley switch used to change from off position to a.c. or d.c. The first major change was to replace the power transformer with a normal type 385 v. aside at 125 Ma., 6.3 v. filament and 5 v. for a 5Y3 rectifier. The Yaxley switch was dispensed with, and replaced with a toggle switch for switching on and off the a.c. input.

Fusing was changed to the use of one globe, and holder, in the centre tap return to earth. All chokes and by-pass condensers associated with the vibrator section were removed, but the filter network in the a.c. input was retained. After re-wiring the receiver filaments in parallel to take the 6.3 volts, tests showed that the noise level was already reduced.

AUDIO Only addition here was the insertion of a 2 Megohm resistor from plate of 6V6 to plate of 6G8 to provide parallel inverse feedback.

SECOND DETECTOR The pot and resistor combination used as a noise limiter was disconnected in favour of 1 Megohm resistor from B plus to screen and 0.1 uF. by-pass. An alternative being tested is the use of a 6C8 as infinite impedance detector using one triode and a 6H6 mounted under the chassis as a series noise limiter. The second half of the 6C8 will be used as the first audio. The potentiometer controlling the noise limiter will be in normal position on the front panel. Addition of this will bring the receiver up to modern standards.

I.F. CHANNEL First item is to re-new the crystal gate, also the second and third i.f. transformers because most were never impregnated enough to keep moisture out, hence performance is low. 6SK7s replace the 6U7s and the necessary re-wiring done. Replacing of the screen resistors is a must as most, you will find, have increased their resistance by use. Re-alignment of the i.f.s. can now be done as per usual practice.

MIXER Here is the heart of the receiver and of course received most attention. After weeks of comparing different combinations of mixer-

osc. circuits etc, final choice was the converter ECH35. This was found to be equal to the separate osc. systems tried, for signal-to-noise ratio, and made for simplicity, as it is not then necessary to have an osc. tube mounted underneath the chassis. The original tube (6K8) works satisfactorily even at 28 Mc., but inherent noise level is high. As you get into the high frequencies the 6K8 tends to super-regenerate in the osc. section, and a high noise level is the result. Also the signals are not clean cut, and osc. drift is bad.

The first necessity is stabilising the oscillator plate voltage. A VR105 was installed in the spare socket of the power supply, and a fifth lead run to the receiver, replacing the 4-pin plug and socket with a 5-pin. Taking out the 50,000 ohm dropping resistor and using a 6,000 ohm wire wound in the regulator circuit in the power supply, cures all oscillator drift. The secret to success with the ECH35 at 28 Mc. and higher, is to use a 20,000 ohm oscillator grid resistor instead of the normal 50,000. This immediately increases the oscillator grid current to about 500 micro-amps., and it is necessary to reduce the oscillator plate tickler coil turns until 200 micro-amps. grid current is obtained.

NOTE.—No. 1 pin must be earthed, so as to earth the coating on the tube. Now the receiver will start to perform and in the writer's case just replacing the 6K8 with the ECH35 showed an increase of two S points on the meter on a constant signal. Re-alignment of the circuits improved reception all round.

R.F. STAGES Choice here of high gain tubes was for 6AG5s because the full 250 volts can be used on the plate. Replacing of the tube sockets is necessary and because of the sharp cut off characteristics of the tubes, a.v.c. was disconnected and circuits re-aligned.

COILS For 28 Mc. take an "E" band coil that normally tunes from 12.5 to 25 Mc., and remove the fixed padding condenser on each coil and remove half a turn from each grid coil (heavy winding). Re-alignment of the oscillator coil variable padders is necessary for the best results. With the set upside down and front to you, the trimmers on the left of each coil box are for low frequency end, those on the right for the high frequency end of the band.

Juggling of these trimmers will give you up to 500 degrees on dial band

spread or less at will, or can be lined up so as to cover 27 to 30 Mc., so covering the new band at 27 Mc.

For 14 Mc., take a "D" band coil. Remove the iron core from the coils and by taking trimmers from an "A" band coil and putting in the "D" band, re-write as per the "E" band coil for 26 Mc. Re-alignment will give you all the band spread necessary and it will be a pleasure how many more signals you can hear.

With these alterations you will have as good a receiver as they come, with plenty of r.f. i.f., audio gain and low internal noise level. This can be tested as follows: With no aerial on the set and all gain controls full on, the noise level should be low and the receiver immediately becomes alive with the aerial on. The sensitivity and signal-to-noise ratio is really good, and you can sit back feeling that at least you have a good receiver.

No receiver diagrams or photographs are included as this receiver is well known.

EDITORIAL

(Continued from page 1)

Telecommunications and Radar, through Area and Unit appointments to jobs as operators or maintenance personnel on current Service Communications and Radar equipment. Outside the commercial field the R.A.A.F. has three major sources of personnel from which to draw in obtaining the 2,000 odd men required; from Hams and Radio Personnel who served in R.A.A.F. Radio Services during the War, from ex-Radar personnel who are not Hams, and from Amateurs generally.

The announcement of the formation of the Radio Reserve in this issue sets out only general terms of service. It merely intends to indicate that a Radio Reserve is to exist, the conditions of Service and how it fits into the R.A.A.F. organisation. Details of enlistment, qualification requirements and training plans are now being worked out and will be announced as soon as possible.

No information is available concerning the possibility of Army or Navy Radio Reserves being formed, but I either of these Services do take similar action to the R.A.A.F., then the W.I.A. will, extend to them the same facilities and co-operation. In the meantime, however, we commend the R.A.A.F. Radio Reserve to you as a means of fitting yourself to serve your Country in time of war in an activity in which you are not only intensely interested, but for which you have proved your aptitude. An enthusiastic acceptance of this scheme will provide yet further proof that our hobby is indeed a National Asset to the Country.

V.E.M.

* c/o. Dept. of Civil Aviation, Darwin, Northern Territory.

McGILL'S (Est. 1860)

**OVERSEAS AND LOCAL POPULAR MAGAZINES
OBTAINABLE ON SUBSCRIPTION.**

AMERICAN Audio Engineering, £1/6/-, CQ, £1/6/-, Communications, £1/2/6, Electronics, £5/6/-, Popular Science, £1/3/6, Popular Mechanics, £1/3/6, Q.S.T., £1/13/6, Radio News, £1/12/-, Radio Craft, £1/5/6, Science Digest, £1/3/6, Science and Mechanics, 15/6; U.S. Camera, £1/4/-

ENGLISH AND AUSTRALIAN Australian Radio World, 10/-; Amateur Radio, 6/-, Electronic Engineering, £1/12/6 Radio and Hobbies, 12/-, Radio and Science, 12/-, Shortwave Magazine, £1/5/6 Wireless World, £1/5/-; Wireless Engineer, £2

(Add exchange to country and interstate cheques)

Large Range of Technical Books, Stationery and Novels on Display.

Mail Orders by Return Post.

McGill's Authorised Newsagency

183-185 ELIZABETH STREET, MELBOURNE, C.1., VICTORIA.

(The G.P.O. is opposite)

M 1475-76-77



**BEHIND
THIS
SYMBOL**

Every transformer looks to be simply coils of wire on a core . . . but the beauty of Trimox Transformers is more than skin deep! Long experience and high standards of technical ability ensure that the unseen parts of your Trimox Transformer will prove their reliability in every test.

TRIMAX Transformers

Division of CLIFF & BUNTING PTY. LTD. ~ 29-35 FLEMINGTON RD., NORTH MELBOURNE, VIC.

SYDNEY:

L. E. Graham,
5 North York St.

BRISBANE

Chondlers Pty. Ltd.
Cnr. Albert &
Charlotte Sts.

INTERSTATE REPRESENTATIVES:

ADELAIDE:

C. N. Muller,
Woranda Bldgs.,
Grenfell St.

PERTH:

R. D. Benjamin,
197 Murray St.

LAUNCESTON:

W. & G. Genders
Pty. Ltd.,
53 Cameron St.

ENQUIRE FROM YOUR NEAREST DEALER

HAM RADIO SUPPLIERS

16 SWAN STREET, RICHMOND

Large Clearance Surplus Stocks ALL GREATLY REDUCED PRICES

A.R.R. RECEIVERS, 11 Valve, 6 Band Switching from 15 Mags. to 150 Kc, continuous coverage. Good condition. Easily converted to A.C. or D.C. power supply operation. Ideal ham work. While they last, less Power Supply £12/10/0

TRANSMITTERS, A.T.S., 50 watt, Phone or C.W. xtal or V.M.O. Tube line up. 6V6 Osc., 807 Doubler, 2 807 in final. Ideal Ham Rig covering 20, 40, 80 Metres. Also Broadcast Band to 150 Kc. Meter for all stages, easily adapted to A.C. or D.C. Power supply. While they last, £10 each. Cheaper ones to choose from.

TRANSCEIVERS, English R.A.F. xtal controlled, covers 40 and 80 Metre Band, including 2 Metres. 0 — 30 Mill, 0—5 Ammeter Thermo Couple. Full of excellent parts suitable for rebuilding the rig. To clear . . £2 each

TRANSCEIVERS, 8 valve English High Frequency. Uses CV6, VR65A, 2 6J5, 4 6SA. Genemotor 9 volts input. Output 450 volts, 50 Mills. All Valves, etc. £3 ea.

TRANSCEIVERS, 12 valve American High Frequency. Uses 3 7193, 7 6SH7, 2 6H6, relays. Genemotor 9 volts input. Output 450 volts, 60 Mills. Complete with all valves £7/10/0 each

High Frequency Receivers, A.S.V. 11 Tube. Uses 5 valve mixer stage, 955, 956, 6 I.F. stages using 1852 I.F. freq., 28 Mags. 5V4 Rectifier. Easily convertible 144. Special Price £9

CONDENSERS. We have a huge stock of Condensers, all types and sizes. .01 M.F.D., 2 M.F.D., 4 M.F.D., 1000 volts working. Try us first for your needs.

AERIAL COUPLING UNIT, AT5-AR8. Matches 100 ohm link to any length or type of Aerial. Complete with 12 volt Relay and R.F. Meter. OUR PRICE, £1/10/0 each.

AMERICAN TYPE C.R.V. 52233, 6 valve, covers 40 and 80 metres Bands. Valve line-up, 2—6N7's, 1—807, 1—VR150 and 2—815's. Two slide in Coils. Phone M.C.W., C.W. An excellent buy at £9, less power supply.

AMERICAN TRANSMITTERS—20-watt Plug-in band type, CBY 52053A. Phone or C.W. valve line-up, 2 89's into 2 837's. RF meter, &c. Limited quantity only £8/10/0

METERS—All types. R.F. Thermo Couple, 0 to 1 Amp. D.C.

FILTER CHOKES AND CONDENSERS, RESISTORS, VARIABLE AND FIXED.

VALVES—We have large quantity of all types of Valves. Transmitting and Receiving.

Inspect all these items at

HAM RADIO SUPPLIERS

16 Swan Street . . . Richmond

Phone : JA 3827

After Hours: Haw. 4465

SPECIAL ATTENTION GIVEN TO COUNTRY MAIL ORDERS.

QUESTIONS AND ANSWERS

ELIMINATING BACK LASH IN BC348 RECEIVERS

One month old and already a lusty infant! It's a case of first come, first served, so if you want a question published don't waste time in sending it in as our space each month is limited.

If you have a question of a technical nature send it in to "Q. and A.," "Amateur Radio," Box 2811W, G.P.O., Melbourne, and if suitable it will be published in this column. If you can answer any of the published questions you are invited to send same to the above address. All such replies will be forwarded to the questioner (if he has sent a stamped addressed envelope of suitable dimensions) and also a summary printed.

In the future, when necessary, the question may not be printed again with its answers, but can be identified by the sequential number. Nuff said, so let's to business.

Q.1.—What is the velocity factor of nylax twin power flex?

A.1.—The answer from VK2CS is being held over till next month, as we hear a rumour that a lot more of the good oil is about to arrive. The same rumour has it that the flex is hot stuff up to 60 Mc. and that the coloured insulation is better than the clear. Sounds screwy but we'll wait and see.

Q.2.—Why are filter chokes put in the high tension lead where the windings have to be well insulated from the core when it appears that they would work equally well in the return lead at approximately earth potential?

A.2.—VK3SO says: "Mainly habit. Brute force filters work equally well with the chokes in either positive or negative lead. The only catch being that in the good old days when wet electrolytics were available the can of the first electrolytic had to be above chassis potential. In fact if in the negative lead the voltage drop across the choke can be used for back bias after filtering with a simple RC filter."

VK2CS, quoting Terman: "The side of the circuit with the series impedance may be placed in either lead of the filter. However, if one output terminal is grounded, and it is essential that hum voltages in the output be extremely small, then the filter chokes must be placed in the ungrounded lead. This is because of the electrostatic capacity of the transformer secondary to ground."

NEW QUESTIONS

Q.3.—From VK3SO: What is the correct method of determining the load resistance for the modulator when screen modulation is used? In other words, what is the impedance of the screen of an 807 working at 150 v. and drawing a static current of 3 Ma. Is it 50,000 ohms? If not what is it and why?

A.4.—From VK3BM: Can anyone supply technical data and socket connections of voltage regulator tube marked "Admiralty pattern voltage stabilizer 5458 NST 280/80?"

FACTS ABOUT NYLEX POWER FLEX

We are indebted to S. W. Grimsley VK3ASG (engineer at 3UZ) for the following.

So many amateurs and enthusiasts are using Nylax twin parallel pair flex cord for feeder lines for various types of antennae that I thought I would try and ascertain from the manufacturers just how this line will perform at radio frequencies.

The Chief Electrical Engineer of Moulded Products Ltd., Mr. R. L. Martin, has been most helpful in this regard, and at his instigation, various tests have been carried out with some rather promising results. Phase velocity figures have not yet been compiled, these I hope to have ready by next month.

Nylax parallel pair flexible cord consists of two 23/0076 insulated conductors laid parallel and joined by a small webbing. The physical dimensions are as follows: radial thickness of insulation in inches, average .034, minimum .026, average overall diameter of each core .114 inches. Average overall dimensions: width is 0.238 inches, maximum thickness is 0.114 inches.

The insulant is not affected by direct sunlight, nor is it affected by oils, grease, acids, alkalis, ozone, or corrosive gases. Nylax insulating material does not absorb moisture, will not support combustion, and is self extinguishing. It does not age or oxidise in service. The cord is obtainable in various colours and each colour has slightly different performance figures.

Characteristic impedance and loss figures are as follows

Colour	Impedance	Attenuation
	In Ohms	db/100 ft.
Blue	157	2.09
Black	165	2.48
Red	157	2.82
Brown	155	2.83
White	152	3.02
Yellow	161	3.38
Clear	146	3.73

The loss figures were calculated at a frequency of 45 Megacycles. It would appear by the figures that this line performs reasonably well, at least up to the 50 Mc. band.

Amongst the fraternity who have in the past favoured the clear variety, do I see a few eyebrows raised?

Back lash in the turning mechanisms of the BC348 series receivers can be eliminated by slight adjustment of the screws that mount the tuning condensers. The holes in the bracket on the condenser are sufficiently large to allow the condenser to be moved far enough to take up the back lash. It is only necessary to loosen the screws on the dial end of the condenser mounting bracket and the sub-panel casting. Twist the screw driver blade until the slack in the gears is taken up, and then re-tighten the mounting screws.—QST

SEND FOR . . .

Radio Amateur's Log Book

This Radio Amateur Station Log Book will record your experimental notations as required by P.M.G. regulations.

Price 3/6, plus 7d. regd. post. or 4 for 12/- plus 1/- regd. post.

Also these other Radio Publications

RADIO ELECTRICAL WEEKLY presents business-news and technical development of radio-electrical industry. Subscription £1 p.a.

TECHNICAL TOPICS RADIO HANDBOOK— 280 page reference book on radio servicing. Price 7/6 plus 9d. regd. post.

RADIO TRADE-IN HANDBOOK— Contains trade-in valuations for all sets. Price 5/- plus 16d. regd. post.

RADIO DIAGRAM & I.F. INDEX— Tells all about brand-line sets for repair. Price 5/- plus 6d. regd. post.

Obtainable from

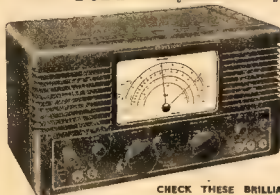
MINGAY Publishing Co.

BOX 3765, G.P.O., SYDNEY.

FIFTY AND UP

Page 12

THE "TOPS" in AMATEUR COMMUNICATION RECEIVERS



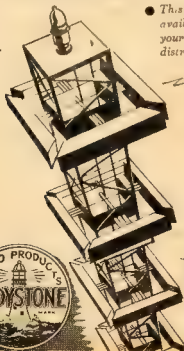
The EDDYSTONE "640"

—ACCLAIMED EVERYWHERE AS THE FINEST "HAM" SET YET DESIGNED!

CHECK THESE BRILLIANT FEATURES:—

1. Receiver has been designed primarily for Amateur Communication purposes, tuning range from 31 Mc/s to 1.7 Mc/s
2. Designed to operate from Standard A.C. Mains with Inputs of 110 volts 200/240 volts, 40/60 cycles as well as from a 6 volt battery by the use of a separate vibrator unit
3. Includes all valves, the "640" is a 9-valve job with one tuned RF stage, FC, two IF stages, detector-AVC-1st audio, 2nd audio output, noise limiter, BFO and rectifier. The valves used, in that order are EF39, 6K8, EF39, EF39, 6Q7, 6V6, EB34, EF39 and 6X5. These are all international octal based on the Mullard or Brimar versions and are therefore easily replaceable
4. INPUT IMPEDANCE—400 ohms.
5. TUNING RANGE—
(1) 31 to 12.5 Mc/s
(2) 12.5 to 5 Mc/s
(3) 5 to 1.7 Mc/s
6. TUNING. An electrical band-spread arrangement is used for this purpose. Fly-wheel control is utilised on the band-spread condenser drive. The scale is clearly marked with all amateur bands, and is so arranged to enable accurate re-setting to a spot frequency
7. I.F. FREQUENCY—1600 Kc/s
CRYSTAL FILTER is vacuum mounted to provide a high degree of stability. Phasing control and "in/out" switch are brought out to the front panel.
9. Sensitivity is better than 2 microvolts input, for 50 milliwatts output, at all frequencies.
10. OUTPUT. Audio frequency output exceeds 3.5 watts.
11. "S" METER. A socket is provided for an external "S" Meter.

● This set is now available from your local distributor



DIRECTORY OF DISTRIBUTORS

- VICTORIA: J N MAGRATH & CO.
208 Little Lonsdale St., Melbourne
- N.S.W.: JOHN MARTIN PTY. LTD.
116-119 Clarence St., Sydney
- Q'LAND: CHANDLERS PTY. LTD.
Cnr. Albert & Charlotte Sts. Bris.
- WEST AUST: CARLYLE & CO. LTD.
Hay St., Perth & 387 Hannan St., Kalgoorlie
- S.A.: GERARD & GOODMAN LTD.
192-196 Rundle Street, Adelaide
- TAS: W. & G. GENDERS PTY. LTD.
53 Cameron Street, Launceston

Australian Factory Representatives:

KEITH HARRIS & CO. PTY. LTD. 51 WILLIAM ST., MELB. Tel. MB2119



EDDYSTONE OFFERS YOU
THE LATEST, MOST DEPENDABLE
COMPONENTS for FM., AM., & PULSE

FEDERAL, QSL and DIVISIONAL NOTES

Federal President—W. R. Gnnov, VK3WG; Federal Secretary—W. T. S. Mitchell, VK3UM, Box 2611W, G.P.O., Melbourne.

NEW SOUTH WALES

Secretary—Wd Nye (VK2XL), Box 1734, G.P.O., Sydney
 Meeting Night—Fourth Friday of each month at Science House, Corner Gloucester and Essex Sts., Sydney
 Divisional Sub-Editor—R. Deal, 209 Oberon Street, Cessago
 Zone Correspondents—North Coast and Tablelands: P. A. St. Alexander, VK2PA, Hill St., Port Macquarie; Newcastle: E. J. Baker, VK2PF, 13 Skelton St., Hamilton, Newcastle, Coalfields and Lakes: H. Hawk, VK2YL, 27 Comfort Ave., Cessago; Western: G. Russell, VK2JA, 14 Logan St., Nyngan; South Coast and Tablelands: R. H. Rayner, VK2DO, 42 Pitt St., Yass; Southern: E. N. Arnold, VK2OI, 673 Forrest Hill Ave., Ayr.

VICTORIA

Secretary—C. Preston-Smith, VK3QG
 Administrative Secretary: Mrs. O. Cross, aw Court Chambers, 191 Queen St., Melbourne, C.3
 Meeting Night—First Wednesday of each month at the Radio Shop, Melbourne Technical College
 Zone Correspondents—North Western: B. R. Minny, VK3BM, Quambatook; Western: C. C. Waring, VK3WV, 12 Square St., Swan; South Western: B. Seaford, VK3B, 17a Raglan Street North, Ballarat; North Eastern: D. Tacey, VK3OW, 18 Harold St., Shepparton; Far North-Western: John Dobson, VK3MF, 42 Walnut Ave., Mildura; Eastern Zone: D. L. Chilver, VK3DI, 20 Smith St., Longthorpe

WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official broadcasts.
 VK2W1—Sundays, 1100 hours EST, 7160 Kc. and 2000 hours EST 50.4 Mc. No frequency checks are available from VK2W1
 VK3W1—Sundays 1130 hours EST 7196 Kc. 1001 frequencies every fourth Tuesday, between 7000 and 7200 Kc. every 10 Kc. individual frequency checks of Amateurs Stations given when VK3W1 is on the air
 VK4W1—Sundays, 0900 hours EST simultaneously on 7109 Kc., 14942 Kc. and 52 004 Mc. Frequency checks are given two nights weekly, and the hours are announced during the Sunday broadcasts
 VK5W1—Sundays, 1000 hours SAST on 7116 Kc. Frequency checks are given by VK5DW on Friday evenings on the 7 and 14 Mc.
 VK5W1—Sat. 3 p.m., Sun. 9 a.m. on W.A.S.T. between 7000 Kc. and 7200 Kc. No frequency checks available
 VK7W1—Second and Fourth Sundays at 1030 hours EST on 7174 Kc. No frequency checks are available

QUEENSLAND

Secretary—G. G. Augustan, Box 838, G.P.O. Brisbane
 Meeting Night—Last Friday in each month at the State Service Building, Elzabeth St., City, Divisional Sub-Editor—H. S. McGregor, VK4ZU, "Maquet", Eldon Rd., Windsor
 SOUTH AUSTRALIA
 Secretary—F. A. Barber, VK5AD, Box 1234K, G.P.O. Adelaide
 Meeting Night—Second Tuesday of each month, at 7, Warrumbul St., Adelaide
 Divisional Sub-Editor—W. Parsons, VK5PS, 483 Esp. Lane, Henley Beach

WESTERN AUSTRALIA

Secretary—W. E. Caxon, VK6AG, 7 Howard St., Perth
 Meeting Night—Second Monday in each month at the Builders Exchange, St. George's Terrace, Perth
 Divisional Sub-Editor—VK6WT, Mr. D. Couch, Mary Street, Watermans Bay, W Australia

TASMANIA

Secretary—J. Brown, VK7BJ, 12 Thirza St., Newtown, Telephone W 1328
 Meeting Night—Second Friday of each month at the Photographic Society's Rooms, 163 Liverpool St., Hobart
 Divisional Sub-Editor—T. Conner, VK7CT, 38 Elizabeth Street, Hobart
 Northern Correspondent—C. P. Wright, VK7LZ, 3 Knight St., Launceston

FEDERAL

FREQUENCY ALLOCATIONS

Listed below are the frequencies at present available for Australian Amateurs, and also types of emission that may be used—
 2.5 to 2.8 Mc.—A1, A2, A3, AF
 2.9 to 3.2 Mc.—A1, A2, AF
 3.4 to 3.8 Mc.—A1, A2, A3
 3.9 to 4.2 Mc.—A1, A2, A3, FM
 4.3 to 4.6 Mc.—A1, A2, A3
 4.7 to 5.0 Mc.—A1, A2, A3, AF, FM, Pulse
 5.1 to 5.4 Mc.—A1, A2, A3, AF, FM, Pulse
 5.5 to 5.8 Mc.—A1, A2, A3, AF, FM, Pulse
 5.9 to 6.2 Mc.—A1, A2, A3, AF, FM, Pulse
 6.3 to 6.6 Mc.—A1, A2, A3, AF, FM, Pulse
 6.7 to 7.0 Mc.—A1, A2, A3, AF, FM, Pulse
 7.1 to 7.4 Mc.—A1, A2, A3, AF, FM, Pulse
 7.5 to 7.8 Mc.—A1, A2, A3, AF, FM, Pulse
 7.9 to 8.2 Mc.—A1, A2, A3, AF, FM, Pulse
 8.3 to 8.6 Mc.—A1, A2, A3, AF, FM, Pulse
 8.7 to 9.0 Mc.—A1, A2, A3, AF, FM, Pulse
 9.1 to 9.4 Mc.—A1, A2, A3, AF, FM, Pulse
 9.5 to 9.8 Mc.—A1, A2, A3, AF, FM, Pulse
 9.9 to 10.2 Mc.—A1, A2, A3, AF, FM, Pulse
 10.3 to 10.6 Mc.—A1, A2, A3, AF, FM, Pulse
 10.7 to 11.0 Mc.—A1, A2, A3, AF, FM, Pulse
 11.1 to 11.4 Mc.—A1, A2, A3, AF, FM, Pulse
 11.5 to 11.8 Mc.—A1, A2, A3, AF, FM, Pulse
 11.9 to 12.2 Mc.—A1, A2, A3, AF, FM, Pulse
 12.3 to 12.6 Mc.—A1, A2, A3, AF, FM, Pulse
 12.7 to 13.0 Mc.—A1, A2, A3, AF, FM, Pulse
 13.1 to 13.4 Mc.—A1, A2, A3, AF, FM, Pulse
 13.5 to 13.8 Mc.—A1, A2, A3, AF, FM, Pulse
 13.9 to 14.2 Mc.—A1, A2, A3, AF, FM, Pulse
 14.3 to 14.6 Mc.—A1, A2, A3, AF, FM, Pulse
 14.7 to 15.0 Mc.—A1, A2, A3, AF, FM, Pulse
 15.1 to 15.4 Mc.—A1, A2, A3, AF, FM, Pulse
 15.5 to 15.8 Mc.—A1, A2, A3, AF, FM, Pulse
 15.9 to 16.2 Mc.—A1, A2, A3, AF, FM, Pulse
 16.3 to 16.6 Mc.—A1, A2, A3, AF, FM, Pulse
 16.7 to 17.0 Mc.—A1, A2, A3, AF, FM, Pulse
 17.1 to 17.4 Mc.—A1, A2, A3, AF, FM, Pulse
 17.5 to 17.8 Mc.—A1, A2, A3, AF, FM, Pulse
 17.9 to 18.2 Mc.—A1, A2, A3, AF, FM, Pulse
 18.3 to 18.6 Mc.—A1, A2, A3, AF, FM, Pulse
 18.7 to 19.0 Mc.—A1, A2, A3, AF, FM, Pulse
 19.1 to 19.4 Mc.—A1, A2, A3, AF, FM, Pulse
 19.5 to 19.8 Mc.—A1, A2, A3, AF, FM, Pulse
 19.9 to 20.2 Mc.—A1, A2, A3, AF, FM, Pulse
 20.3 to 20.6 Mc.—A1, A2, A3, AF, FM, Pulse
 20.7 to 21.0 Mc.—A1, A2, A3, AF, FM, Pulse
 21.1 to 21.4 Mc.—A1, A2, A3, AF, FM, Pulse
 21.5 to 21.8 Mc.—A1, A2, A3, AF, FM, Pulse
 21.9 to 22.2 Mc.—A1, A2, A3, AF, FM, Pulse
 22.3 to 22.6 Mc.—A1, A2, A3, AF, FM, Pulse
 22.7 to 23.0 Mc.—A1, A2, A3, AF, FM, Pulse
 23.1 to 23.4 Mc.—A1, A2, A3, AF, FM, Pulse
 23.5 to 23.8 Mc.—A1, A2, A3, AF, FM, Pulse
 23.9 to 24.2 Mc.—A1, A2, A3, AF, FM, Pulse
 24.3 to 24.6 Mc.—A1, A2, A3, AF, FM, Pulse
 24.7 to 25.0 Mc.—A1, A2, A3, AF, FM, Pulse
 25.1 to 25.4 Mc.—A1, A2, A3, AF, FM, Pulse
 25.5 to 25.8 Mc.—A1, A2, A3, AF, FM, Pulse
 25.9 to 26.2 Mc.—A1, A2, A3, AF, FM, Pulse
 26.3 to 26.6 Mc.—A1, A2, A3, AF, FM, Pulse
 26.7 to 27.0 Mc.—A1, A2, A3, AF, FM, Pulse
 27.1 to 27.4 Mc.—A1, A2, A3, AF, FM, Pulse
 27.5 to 27.8 Mc.—A1, A2, A3, AF, FM, Pulse
 27.9 to 28.2 Mc.—A1, A2, A3, AF, FM, Pulse
 28.3 to 28.6 Mc.—A1, A2, A3, AF, FM, Pulse
 28.7 to 29.0 Mc.—A1, A2, A3, AF, FM, Pulse
 29.1 to 29.4 Mc.—A1, A2, A3, AF, FM, Pulse
 29.5 to 29.8 Mc.—A1, A2, A3, AF, FM, Pulse
 29.9 to 30.2 Mc.—A1, A2, A3, AF, FM, Pulse
 30.3 to 30.6 Mc.—A1, A2, A3, AF, FM, Pulse
 30.7 to 31.0 Mc.—A1, A2, A3, AF, FM, Pulse
 31.1 to 31.4 Mc.—A1, A2, A3, AF, FM, Pulse
 31.5 to 31.8 Mc.—A1, A2, A3, AF, FM, Pulse
 31.9 to 32.2 Mc.—A1, A2, A3, AF, FM, Pulse
 32.3 to 32.6 Mc.—A1, A2, A3, AF, FM, Pulse
 32.7 to 33.0 Mc.—A1, A2, A3, AF, FM, Pulse
 33.1 to 33.4 Mc.—A1, A2, A3, AF, FM, Pulse
 33.5 to 33.8 Mc.—A1, A2, A3, AF, FM, Pulse
 33.9 to 34.2 Mc.—A1, A2, A3, AF, FM, Pulse
 34.3 to 34.6 Mc.—A1, A2, A3, AF, FM, Pulse
 34.7 to 35.0 Mc.—A1, A2, A3, AF, FM, Pulse
 35.1 to 35.4 Mc.—A1, A2, A3, AF, FM, Pulse
 35.5 to 35.8 Mc.—A1, A2, A3, AF, FM, Pulse
 35.9 to 36.2 Mc.—A1, A2, A3, AF, FM, Pulse
 36.3 to 36.6 Mc.—A1, A2, A3, AF, FM, Pulse
 36.7 to 37.0 Mc.—A1, A2, A3, AF, FM, Pulse
 37.1 to 37.4 Mc.—A1, A2, A3, AF, FM, Pulse
 37.5 to 37.8 Mc.—A1, A2, A3, AF, FM, Pulse
 37.9 to 38.2 Mc.—A1, A2, A3, AF, FM, Pulse
 38.3 to 38.6 Mc.—A1, A2, A3, AF, FM, Pulse
 38.7 to 39.0 Mc.—A1, A2, A3, AF, FM, Pulse
 39.1 to 39.4 Mc.—A1, A2, A3, AF, FM, Pulse
 39.5 to 39.8 Mc.—A1, A2, A3, AF, FM, Pulse
 39.9 to 40.2 Mc.—A1, A2, A3, AF, FM, Pulse
 40.3 to 40.6 Mc.—A1, A2, A3, AF, FM, Pulse
 40.7 to 41.0 Mc.—A1, A2, A3, AF, FM, Pulse
 41.1 to 41.4 Mc.—A1, A2, A3, AF, FM, Pulse
 41.5 to 41.8 Mc.—A1, A2, A3, AF, FM, Pulse
 41.9 to 42.2 Mc.—A1, A2, A3, AF, FM, Pulse
 42.3 to 42.6 Mc.—A1, A2, A3, AF, FM, Pulse
 42.7 to 43.0 Mc.—A1, A2, A3, AF, FM, Pulse
 43.1 to 43.4 Mc.—A1, A2, A3, AF, FM, Pulse
 43.5 to 43.8 Mc.—A1, A2, A3, AF, FM, Pulse
 43.9 to 44.2 Mc.—A1, A2, A3, AF, FM, Pulse
 44.3 to 44.6 Mc.—A1, A2, A3, AF, FM, Pulse
 44.7 to 45.0 Mc.—A1, A2, A3, AF, FM, Pulse
 45.1 to 45.4 Mc.—A1, A2, A3, AF, FM, Pulse
 45.5 to 45.8 Mc.—A1, A2, A3, AF, FM, Pulse
 45.9 to 46.2 Mc.—A1, A2, A3, AF, FM, Pulse
 46.3 to 46.6 Mc.—A1, A2, A3, AF, FM, Pulse
 46.7 to 47.0 Mc.—A1, A2, A3, AF, FM, Pulse
 47.1 to 47.4 Mc.—A1, A2, A3, AF, FM, Pulse
 47.5 to 47.8 Mc.—A1, A2, A3, AF, FM, Pulse
 47.9 to 48.2 Mc.—A1, A2, A3, AF, FM, Pulse
 48.3 to 48.6 Mc.—A1, A2, A3, AF, FM, Pulse
 48.7 to 49.0 Mc.—A1, A2, A3, AF, FM, Pulse
 49.1 to 49.4 Mc.—A1, A2, A3, AF, FM, Pulse
 49.5 to 49.8 Mc.—A1, A2, A3, AF, FM, Pulse
 49.9 to 50.2 Mc.—A1, A2, A3, AF, FM, Pulse
 50.3 to 50.6 Mc.—A1, A2, A3, AF, FM, Pulse
 50.7 to 51.0 Mc.—A1, A2, A3, AF, FM, Pulse
 51.1 to 51.4 Mc.—A1, A2, A3, AF, FM, Pulse
 51.5 to 51.8 Mc.—A1, A2, A3, AF, FM, Pulse
 51.9 to 52.2 Mc.—A1, A2, A3, AF, FM, Pulse
 52.3 to 52.6 Mc.—A1, A2, A3, AF, FM, Pulse
 52.7 to 53.0 Mc.—A1, A2, A3, AF, FM, Pulse
 53.1 to 53.4 Mc.—A1, A2, A3, AF, FM, Pulse
 53.5 to 53.8 Mc.—A1, A2, A3, AF, FM, Pulse
 53.9 to 54.2 Mc.—A1, A2, A3, AF, FM, Pulse
 54.3 to 54.6 Mc.—A1, A2, A3, AF, FM, Pulse
 54.7 to 55.0 Mc.—A1, A2, A3, AF, FM, Pulse
 55.1 to 55.4 Mc.—A1, A2, A3, AF, FM, Pulse
 55.5 to 55.8 Mc.—A1, A2, A3, AF, FM, Pulse
 55.9 to 56.2 Mc.—A1, A2, A3, AF, FM, Pulse
 56.3 to 56.6 Mc.—A1, A2, A3, AF, FM, Pulse
 56.7 to 57.0 Mc.—A1, A2, A3, AF, FM, Pulse
 57.1 to 57.4 Mc.—A1, A2, A3, AF, FM, Pulse
 57.5 to 57.8 Mc.—A1, A2, A3, AF, FM, Pulse
 57.9 to 58.2 Mc.—A1, A2, A3, AF, FM, Pulse
 58.3 to 58.6 Mc.—A1, A2, A3, AF, FM, Pulse
 58.7 to 59.0 Mc.—A1, A2, A3, AF, FM, Pulse
 59.1 to 59.4 Mc.—A1, A2, A3, AF, FM, Pulse
 59.5 to 59.8 Mc.—A1, A2, A3, AF, FM, Pulse
 59.9 to 60.2 Mc.—A1, A2, A3, AF, FM, Pulse
 60.3 to 60.6 Mc.—A1, A2, A3, AF, FM, Pulse
 60.7 to 61.0 Mc.—A1, A2, A3, AF, FM, Pulse
 61.1 to 61.4 Mc.—A1, A2, A3, AF, FM, Pulse
 61.5 to 61.8 Mc.—A1, A2, A3, AF, FM, Pulse
 61.9 to 62.2 Mc.—A1, A2, A3, AF, FM, Pulse
 62.3 to 62.6 Mc.—A1, A2, A3, AF, FM, Pulse
 62.7 to 63.0 Mc.—A1, A2, A3, AF, FM, Pulse
 63.1 to 63.4 Mc.—A1, A2, A3, AF, FM, Pulse
 63.5 to 63.8 Mc.—A1, A2, A3, AF, FM, Pulse
 63.9 to 64.2 Mc.—A1, A2, A3, AF, FM, Pulse
 64.3 to 64.6 Mc.—A1, A2, A3, AF, FM, Pulse
 64.7 to 65.0 Mc.—A1, A2, A3, AF, FM, Pulse
 65.1 to 65.4 Mc.—A1, A2, A3, AF, FM, Pulse
 65.5 to 65.8 Mc.—A1, A2, A3, AF, FM, Pulse
 65.9 to 66.2 Mc.—A1, A2, A3, AF, FM, Pulse
 66.3 to 66.6 Mc.—A1, A2, A3, AF, FM, Pulse
 66.7 to 67.0 Mc.—A1, A2, A3, AF, FM, Pulse
 67.1 to 67.4 Mc.—A1, A2, A3, AF, FM, Pulse
 67.5 to 67.8 Mc.—A1, A2, A3, AF, FM, Pulse
 67.9 to 68.2 Mc.—A1, A2, A3, AF, FM, Pulse
 68.3 to 68.6 Mc.—A1, A2, A3, AF, FM, Pulse
 68.7 to 69.0 Mc.—A1, A2, A3, AF, FM, Pulse
 69.1 to 69.4 Mc.—A1, A2, A3, AF, FM, Pulse
 69.5 to 69.8 Mc.—A1, A2, A3, AF, FM, Pulse
 69.9 to 70.2 Mc.—A1, A2, A3, AF, FM, Pulse
 70.3 to 70.6 Mc.—A1, A2, A3, AF, FM, Pulse
 70.7 to 71.0 Mc.—A1, A2, A3, AF, FM, Pulse
 71.1 to 71.4 Mc.—A1, A2, A3, AF, FM, Pulse
 71.5 to 71.8 Mc.—A1, A2, A3, AF, FM, Pulse
 71.9 to 72.2 Mc.—A1, A2, A3, AF, FM, Pulse
 72.3 to 72.6 Mc.—A1, A2, A3, AF, FM, Pulse
 72.7 to 73.0 Mc.—A1, A2, A3, AF, FM, Pulse
 73.1 to 73.4 Mc.—A1, A2, A3, AF, FM, Pulse
 73.5 to 73.8 Mc.—A1, A2, A3, AF, FM, Pulse
 73.9 to 74.2 Mc.—A1, A2, A3, AF, FM, Pulse
 74.3 to 74.6 Mc.—A1, A2, A3, AF, FM, Pulse
 74.7 to 75.0 Mc.—A1, A2, A3, AF, FM, Pulse
 75.1 to 75.4 Mc.—A1, A2, A3, AF, FM, Pulse
 75.5 to 75.8 Mc.—A1, A2, A3, AF, FM, Pulse
 75.9 to 76.2 Mc.—A1, A2, A3, AF, FM, Pulse
 76.3 to 76.6 Mc.—A1, A2, A3, AF, FM, Pulse
 76.7 to 77.0 Mc.—A1, A2, A3, AF, FM, Pulse
 77.1 to 77.4 Mc.—A1, A2, A3, AF, FM, Pulse
 77.5 to 77.8 Mc.—A1, A2, A3, AF, FM, Pulse
 77.9 to 78.2 Mc.—A1, A2, A3, AF, FM, Pulse
 78.3 to 78.6 Mc.—A1, A2, A3, AF, FM, Pulse
 78.7 to 79.0 Mc.—A1, A2, A3, AF, FM, Pulse
 79.1 to 79.4 Mc.—A1, A2, A3, AF, FM, Pulse
 79.5 to 79.8 Mc.—A1, A2, A3, AF, FM, Pulse
 79.9 to 80.2 Mc.—A1, A2, A3, AF, FM, Pulse
 80.3 to 80.6 Mc.—A1, A2, A3, AF, FM, Pulse
 80.7 to 81.0 Mc.—A1, A2, A3, AF, FM, Pulse
 81.1 to 81.4 Mc.—A1, A2, A3, AF, FM, Pulse
 81.5 to 81.8 Mc.—A1, A2, A3, AF, FM, Pulse
 81.9 to 82.2 Mc.—A1, A2, A3, AF, FM, Pulse
 82.3 to 82.6 Mc.—A1, A2, A3, AF, FM, Pulse
 82.7 to 83.0 Mc.—A1, A2, A3, AF, FM, Pulse
 83.1 to 83.4 Mc.—A1, A2, A3, AF, FM, Pulse
 83.5 to 83.8 Mc.—A1, A2, A3, AF, FM, Pulse
 83.9 to 84.2 Mc.—A1, A2, A3, AF, FM, Pulse
 84.3 to 84.6 Mc.—A1, A2, A3, AF, FM, Pulse
 84.7 to 85.0 Mc.—A1, A2, A3, AF, FM, Pulse
 85.1 to 85.4 Mc.—A1, A2, A3, AF, FM, Pulse
 85.5 to 85.8 Mc.—A1, A2, A3, AF, FM, Pulse
 85.9 to 86.2 Mc.—A1, A2, A3, AF, FM, Pulse
 86.3 to 86.6 Mc.—A1, A2, A3, AF, FM, Pulse
 86.7 to 87.0 Mc.—A1, A2, A3, AF, FM, Pulse
 87.1 to 87.4 Mc.—A1, A2, A3, AF, FM, Pulse
 87.5 to 87.8 Mc.—A1, A2, A3, AF, FM, Pulse
 87.9 to 88.2 Mc.—A1, A2, A3, AF, FM, Pulse
 88.3 to 88.6 Mc.—A1, A2, A3, AF, FM, Pulse
 88.7 to 89.0 Mc.—A1, A2, A3, AF, FM, Pulse
 89.1 to 89.4 Mc.—A1, A2, A3, AF, FM, Pulse
 89.5 to 89.8 Mc.—A1, A2, A3, AF, FM, Pulse
 89.9 to 90.2 Mc.—A1, A2, A3, AF, FM, Pulse
 90.3 to 90.6 Mc.—A1, A2, A3, AF, FM, Pulse
 90.7 to 91.0 Mc.—A1, A2, A3, AF, FM, Pulse
 91.1 to 91.4 Mc.—A1, A2, A3, AF, FM, Pulse
 91.5 to 91.8 Mc.—A1, A2, A3, AF, FM, Pulse
 91.9 to 92.2 Mc.—A1, A2, A3, AF, FM, Pulse
 92.3 to 92.6 Mc.—A1, A2, A3, AF, FM, Pulse
 92.7 to 93.0 Mc.—A1, A2, A3, AF, FM, Pulse
 93.1 to 93.4 Mc.—A1, A2, A3, AF, FM, Pulse
 93.5 to 93.8 Mc.—A1, A2, A3, AF, FM, Pulse
 93.9 to 94.2 Mc.—A1, A2, A3, AF, FM, Pulse
 94.3 to 94.6 Mc.—A1, A2, A3, AF, FM, Pulse
 94.7 to 95.0 Mc.—A1, A2, A3, AF, FM, Pulse
 95.1 to 95.4 Mc.—A1, A2, A3, AF, FM, Pulse
 95.5 to 95.8 Mc.—A1, A2, A3, AF, FM, Pulse
 95.9 to 96.2 Mc.—A1, A2, A3, AF, FM, Pulse
 96.3 to 96.6 Mc.—A1, A2, A3, AF, FM, Pulse
 96.7 to 97.0 Mc.—A1, A2, A3, AF, FM, Pulse
 97.1 to 97.4 Mc.—A1, A2, A3, AF, FM, Pulse
 97.5 to 97.8 Mc.—A1, A2, A3, AF, FM, Pulse
 97.9 to 98.2 Mc.—A1, A2, A3, AF, FM, Pulse
 98.3 to 98.6 Mc.—A1, A2, A3, AF, FM, Pulse
 98.7 to 99.0 Mc.—A1, A2, A3, AF, FM, Pulse
 99.1 to 99.4 Mc.—A1, A2, A3, AF, FM, Pulse
 99.5 to 99.8 Mc.—A1, A2, A3, AF, FM, Pulse
 99.9 to 100.2 Mc.—A1, A2, A3, AF, FM, Pulse
 100.3 to 100.6 Mc.—A1, A2, A3, AF, FM, Pulse
 100.7 to 101.0 Mc.—A1, A2, A3, AF, FM, Pulse
 101.1 to 101.4 Mc.—A1, A2, A3, AF, FM, Pulse
 101.5 to 101.8 Mc.—A1, A2, A3, AF, FM, Pulse
 101.9 to 102.2 Mc.—A1, A2, A3, AF, FM, Pulse
 102.3 to 102.6 Mc.—A1, A2, A3, AF, FM, Pulse
 102.7 to 103.0 Mc.—A1, A2, A3, AF, FM, Pulse
 103.1 to 103.4 Mc.—A1, A2, A3, AF, FM, Pulse
 103.5 to 103.8 Mc.—A1, A2, A3, AF, FM, Pulse
 103.9 to 104.2 Mc.—A1, A2, A3, AF, FM, Pulse
 104.3 to 104.6 Mc.—A1, A2, A3, AF, FM, Pulse
 104.7 to 105.0 Mc.—A1, A2, A3, AF, FM, Pulse
 105.1 to 105.4 Mc.—A1, A2, A3, AF, FM, Pulse
 105.5 to 105.8 Mc.—A1, A2, A3, AF, FM, Pulse
 105.9 to 106.2 Mc.—A1, A2, A3, AF, FM, Pulse
 106.3 to 106.6 Mc.—A1, A2, A3, AF, FM, Pulse
 106.7 to 107.0 Mc.—A1, A2, A3, AF, FM, Pulse
 107.1 to 107.4 Mc.—A1, A2, A3, AF, FM, Pulse
 107.5 to 107.8 Mc.—A1, A2, A3, AF, FM, Pulse
 107.9 to 108.2 Mc.—A1, A2, A3, AF, FM, Pulse
 108.3 to 108.6 Mc.—A1, A2, A3, AF, FM, Pulse
 108.7 to 109.0 Mc.—A1, A2, A3, AF, FM, Pulse
 109.1 to 109.4 Mc.—A1, A2, A3, AF, FM, Pulse
 109.5 to 109.8 Mc.—A1, A2, A3, AF, FM, Pulse
 109.9 to 110.2 Mc.—A1, A2, A3, AF, FM, Pulse
 110.3 to 110.6 Mc.—A1, A2, A3, AF, FM, Pulse
 110.7 to 111.0 Mc.—A1, A2, A3, AF, FM, Pulse
 111.1 to 111.4 Mc.—A1, A2, A3, AF, FM, Pulse
 111.5 to 111.8 Mc.—A1, A2, A3, AF, FM, Pulse
 111.9 to 112.2 Mc.—A1, A2, A3, AF, FM, Pulse
 112.3 to 112.6 Mc.—A1, A2, A3, AF, FM, Pulse
 112.7 to 113.0 Mc.—A1, A2, A3, AF, FM, Pulse
 113.1 to 113.4 Mc.—A1, A2, A3, AF, FM, Pulse
 113.5 to 113.8 Mc.—A1, A2, A3, AF, FM, Pulse
 113.9 to 114.2 Mc.—A1, A2, A3, AF, FM, Pulse
 114.3 to 114.6 Mc.—A1, A2, A3, AF, FM, Pulse
 114.7 to 115.0 Mc.—A1, A2, A3, AF, FM, Pulse
 115.1 to 115.4 Mc.—A1, A2, A3, AF, FM, Pulse
 115.5 to 115.8 Mc.—A1, A2, A3, AF, FM, Pulse
 115.9 to 116.2 Mc.—A1, A2, A3, AF, FM, Pulse
 116.3 to 116.6 Mc.—A1, A2, A3, AF, FM, Pulse
 116.7 to 117.0 Mc.—A1, A2, A3, AF, FM, Pulse
 117.1 to 117.4 Mc.—A1, A2, A3, AF, FM, Pulse
 117.5 to 117.8 Mc.—A1, A2, A3, AF, FM, Pulse
 117.9 to 118.2 Mc.—A1, A2, A3, AF, FM, Pulse
 118.3 to 118.6 Mc.—A1, A2, A3, AF, FM, Pulse
 118.7 to 119.0 Mc.—A1, A2, A3, AF, FM, Pulse
 119.1 to 119.4 Mc.—A1, A2, A3, AF, FM, Pulse
 119.5 to 119.8 Mc.—A1, A2, A3, AF, FM, Pulse
 119.9 to 120.2 Mc.—A1, A2, A3, AF, FM, Pulse
 120.3 to 120.6 Mc.—A1, A2, A3, AF, FM, Pulse
 120.7 to 121.0 Mc.—A1, A2, A3, AF, FM, Pulse
 121.1 to 121.4 Mc.—A1, A2, A3, AF, FM, Pulse
 121.5 to 121.8 Mc.—A1, A2, A3, AF, FM, Pulse
 121.9 to 122.2 Mc.—A1, A2, A3, AF, FM, Pulse
 122.3 to 122.6 Mc.—A1, A2, A3, AF, FM, Pulse
 122.7 to 123.0 Mc.—A1, A2, A3, AF, FM, Pulse
 123.1 to 123.4 Mc.—A1, A2, A3, AF, FM, Pulse
 123.5 to 123.8 Mc.—A1, A2, A3, AF, FM, Pulse
 123.9 to 124.2 Mc.—A1, A2, A3, AF, FM, Pulse
 124.3 to 124.6 Mc.—A1, A2, A3, AF, FM, Pulse
 124.7 to 125.0 Mc.—A1, A2, A3, AF, FM, Pulse
 125.1 to 125.4 Mc.—A1, A2, A3, AF, FM, Pulse
 125.5 to 125.8 Mc.—A1, A2, A3, AF, FM, Pulse
 125.9 to 126.2 Mc.—A1, A2, A3, AF, FM, Pulse
 126.3 to 126.6 Mc.—A1, A2, A3, AF, FM, Pulse
 126.7 to 127.0 Mc.—A1, A2, A3, AF, FM, Pulse
 127.1 to 127.4 Mc.—A1, A2, A3, AF, FM, Pulse
 127.5 to 127.8 Mc.—A1, A2, A3, AF, FM, Pulse
 127.9 to 128.2 Mc.—A1, A2, A3, AF, FM, Pulse
 128.3 to 128.6 Mc.—A1, A2, A3, AF, FM, Pulse
 128.7 to 129.0 Mc.—A1, A2, A3, AF, FM, Pulse
 129.1 to 129.4 Mc.—A1, A2, A3, AF, FM, Pulse
 129.5 to 129.8 Mc.—A1, A2, A3, AF, FM, Pulse
 129.9 to 130.2 Mc.—A1, A2, A3, AF, FM, Pulse
 130.3 to 130.6 Mc.—A1, A2, A3, AF, FM, Pulse
 130.7 to 131.0 Mc.—A1, A2, A3, AF, FM, Pulse
 131.1 to 131.4 Mc.—A1, A2, A3, AF, FM, Pulse
 131.5 to 131.8 Mc.—A1, A2, A3, AF, FM, Pulse
 131.9 to 132.2 Mc.—A1, A2, A3, AF, FM, Pulse
 132.3 to 132.6 Mc.—A1, A2, A3, AF, FM, Pulse
 132.7 to 133.0 Mc.—A1, A2, A3, AF, FM, Pulse
 133.1 to 133.4 Mc.—A1, A2, A3, AF, FM, Pulse
 133.5 to 133.8 Mc.—A1, A2, A3, AF, FM, Pulse
 133.9 to 134.2 Mc.—A1, A2, A3, AF, FM, Pulse
 134.3 to 134.6 Mc.—A1, A2, A3, AF, FM, Pulse
 134.7 to 135.0 Mc.—A1, A2, A3, AF, FM, Pulse
 135.1 to 135.4 Mc.—A1, A2, A3, AF, FM, Pulse
 135.5 to 135.8 Mc.—A1, A2, A3, AF, FM, Pulse
 135.9 to 136.2 Mc.—A1, A2, A3, AF, FM, Pulse
 136.3 to 136.6 Mc.—A1, A2, A3, AF, FM, Pulse

tion, and report subsequent changes which may require them until, for service, that they will notify changes in their resumes. Reservists will then will re-affirm their desire to continue service and the state of their health at the time.

Reservists shall not be required to undergo training outside the Commonwealth or its Territories without their consent. When reservists are called up, they shall be liable to serve for the period for which the Reserve has been volunteered, or for the period which they have volunteered, whichever is the longer.

The details of the regulations by which the Reserve is governed are as follows: Reservists proposed for service by the Commonwealth temporarily shall notify the Air Board of their intention, but the appointment of reservists liable to up positions and residence abroad shall be terminated.

Members on the Reserve shall rank as Junior to members of the Permanent Force as those called up, and when called up the service members of the Reserve shall rank and take command with members of the Permanent Force as those called up, seniority bore date from the date of being called up, or, if promoted whilst called up, from the date of such promotion.

Ages for retirement shall be as prescribed for members of the Permanent Force but, in time of war, the ages for retirement may be extended for an additional period not exceeding the duration of the war and a period of three months thereafter.

Persons appointed to the Reserve will be appointed in the substantive or higher temporary rank previously held, but persons who have not held previous service shall be entered in such rank as may be approved by the Air Board.

A reservist shall be liable to pass such tests of efficiency and other tests for his category and rank as may from time to time be required by the Air Board.

Reservists will not receive any pay, allowance or promotion unless and until they are called up for service, or in the case of the Permanent Air Force Reserve, unless they are called up to undergo a period of continuous training.

The division of members of the Permanent Air Force and Officers in Force Reserve shall be categorized into general duties, technical, equipment, accountant, special duties, medical and medical officers and officers of the R.A.A.F. Nursing Service and the W.A.A.A.F.

It is provided that the armies' list will be composed with the same categories and groups and an additional category will be added to provide for the entry of ex-servicemen.

Consideration has also been given in the second part of members of the Air Training Corps who have retired from the Corps upon attaining the age of 18 years. The transfer of such members to the category of the Reserve will create a valuable pool of well-trained young men.

The Reservists will be kept in touch with latest developments in the R.A.A.F. by means of the following facilities, service pamphlets, newsletters, lectures, films and, wherever possible, visits to R.A.A.F. stations and units for the purpose of showing new equipment and flying demonstrations.

Working closely with the Air Force Association of each State, the R.A.A.F. will make every effort to foster the interest and enthusiasm of its Reservists.

It is intended that the plans include the incorporation of the pre-war Reserve to the Reserve of the R.A.A.F. Reserve and that the numbers of reserve personnel in the Permanent Air Force Reserve will be about 280 and 2,800 respectively, which compares with the pre-war total of 198 members, 188 of whom received commissions during the war.

It will be the policy of the Service to enlist the aid of the Welfare Institute of Australia to assist in the training and recruiting of the part of the Reserve, and it is proposed to organize the recruitment of the Reserve on an area basis to effect the complete integration necessary if it is to be of maximum use.

Under such an organization, the Chief Signals Officer of each R.A.A.F. Area will be responsible for the training of reservists including their position in many of the latest radio and radar devices.

The value of reservists can be judged from the fact that the R.A.A.F. Welfare Institute in 1939 permitted the R.A.A.F. to man viable important aircraft without delay and to carry out a development plan of expansion which would have been considerably delayed without the able and loyal aid of the members of the Reserve.

The R.A.A.F. new radio installations, costing £1.5 million, will include a radio teleprinter, a radio communication system using frequency shift and single side band techniques, which, combined with the tape system of transmission and a new system of very high frequency time keyed radio links will

provide a modern and efficient communication system on which members will be trained.

High powered radio transmitters, broadcasting meteorological information are being installed at Canberra under an international agreement, which provide for the use of the same from Australia, to be linked with a chain of similar transmitters extending from South Africa to Hawaii.

The R.A.A.F. system will be linked with very high frequency communication equipment, which will provide efficient air to ground communication and will also enable the Department of the Civil Aviation's Radio Ranges. These ranges give a visual indication that aircraft are on course when flying in the range.

The R.A.A.F.'s approach and landing aids will include the latest aids used in Britain and America and which enable operators on the ground to see the exact position and height of an aircraft, near the airfield, and to guide the aircraft to a landing by radio telephone. Another landing aid to be used is the instrument which employs equipment fitted to the aircraft, and operated by the pilot. Indications received from the ground approach beacon and from marker and outer marker will enable the pilot to almost land "blind". Other aids to be included include Radar Beacons, High Power Medium Frequency Homing Beacons and Cathode Ray high Frequency Direction Indicator Stations. The latter, of course, have already been used at all coastal bases to facilitate the R.A.A.F.'s search and rescue service to which it is committed under the I.C.A.O. agreement.

AMATEUR CALL SIGNS

We have been notified by the P.M.G.'s Department that no Call Sign Book will be published in this July. The following are the amendments, etc., to the 1st June.

Alterations:

- VK2ABN—W North, 31 Mireville St., Concord, West, N.S.W.
- 2ACX—R. O. Kirkwood, 356 Pennant Hills Rd., Pennant Hills, N.S.W.
- 2AFB—J. J. Reynolds, 12 Cotswold St., Westmead, N.S.W.
- 2AHP—R. H. Jones, Booralla Rd., Edmond Park, S. Aust.
- 2ABZ—H. P. Jackson, "Benares," Barroona Ave., Church Point, N.S.W.
- 2AKW—G. J. Humphrey, 49 Carlington Rd., Epping, N.S.W.
- 2BO—E. L. Andrews, "Barndale," corner Thorny Rd. & Cambridge St., Fairfield West, N.S.W.
- 2DS—W. St. Clair, Remondy Rd., Port Macquarie, N.S.W.
- 2NF—F. Noble, c/o. 82 James St., Maroubra, N.S.W.
- 2IA—K. P. Handl, 523 Homer St., Earlwood, N.S.W.
- 2IX—J. H. Adams, "Walgaun," Plateau Rd., Belconnen, N.S.W.
- 2IA—R. F. Collett, 60 Sharpe St., Belmore, N.S.W.
- 2IN—R. L. Douglas, Bann King St., Depto 27, N. S. Phils., "Glenmore," Hail, A.C.T.
- 2QI—C. Bowler, 81a Iron Bling, c/o. 25 Castle St., Penrith, N.S.W.
- 2QR—J. F. Hamilton, "Carlotta," Castle Hill Rd., West Penrith, N.S.W.
- 2QW—A. G. Bart & Drummond St., Belmore, N.S.W.
- 2TD—R. D. Doyle, 7 Great North Rd., Five Docks, N.S.W.
- 2VM—G. W. Morris, 134 Falcon Street, North Sydney, N.S.W.
- 2IQ—J. W. Paton, 78 Fairlight St., Manly, N.S.W.
- 2YU—(formerly VK6AY)—R. J. Bentley, "Warrior," Young, N.S.W.
- 2YU—(formerly VK6AY)—D. Dawson c/o. Station 12M, Tanworth, N.S.W.
- VK2ABD—B. J. Rogers, 59 Andrew St., Windsor, N.S.W.
- VK2ACB—E. Wilson, 7 Duke St., Werrington, N.S.W.
- 3ABH—H. Jupp, Glenard Rd., Glenroy, Vic.
- 3AJZ—A. R. Glover, 12 Fztn St., Barrow Hills, Vic.
- 3ALW—G. L. Wynn, 31 McArthur St., Moorabbin, Vic.
- 3RS—(formerly VK4LP)—L. N. Page, 880 White horse Rd., Surrey Hills, Vic.
- 3DC—D. G. Caldwell, 23 Lowell St., South Hawthorn, Vic.
- 3BQ—N. S. G. & Co., 14 Ryd St., Warrnambool, Vic.
- 3QZ—A. C. Yeomans, 25 St. John's, New, Vic.
- 3BQ—Mrs. M. L. Williamson, Bryon Avon, Cal Jawanda, Vic.
- 3OV—A. F. Cunningham, cor. Queen & Webb Streets, Altona, Vic.
- 3PH—N. G. Williams, "Crashback," High St., Seymour, Vic.
- 3QE—S. L. Einstedt, cor. Draper & Blackshaw Sts., Ormond, Vic.
- 3QQ—J. R. Lancaster, 559 Nepoon Highway, Parkville, Vic.
- 3RR—R. J. Blackham, 31 Fellow St., Mitcham, Vic.
- 3ALN—E. H. Eckenroth, Woodstock Ave., Yarragon, Vic.
- 4JN—(formerly VK4JA)—R. E. Khan, 28 Heydon St., Cairns, Qld.
- 4JH—(formerly VK2JH)—J. E. Ellis, c/o. 431, Gimpson Rd., Brisbane, Qld.
- 4YL—S. O. Dargatzidis, Hobart St., Ayr, Qld.

4SR—T. S. Shoring, 178 Oxlade Drive, New South Wales, Qld.

4UX—(formerly VK8AB)—A. R. Sande, 10 Beckman St., Plympton, S.A.

5PK—(formerly VK2AB)—P. T. Bainsworth, 93 Leader St., Forestville, S.A.

5VC—J. G. Mason, 10 Buxton Rd., Alberton, S.A.

5AN—G. McNamara, 6 West Park, Adelaide Park, S.A.

VK6WD—W. D. Scott, 235 Wellington St., Northam, New South Wales, Qld.

VK2EB—J. C. Clement, 17 Elizabeth St., Dulwich Hill, N.S.W.

2YU—J. Trick, 26 Hill St., Balgownie, N.S.W.

2FT—S. F. Maseitt, 118 Foyeshill St., Wagga Wagga, N.S.W.

2ET—J. P. Perky, 71 Albion St., Waverley, N.S.W.

2IL—J. W. Wainwright, 51 Best St., North Sydney, N.S.W.

2MX—J. W. Johnston, "Walaroo," Nathour, N.S.W.

2SN—G. E. Swales, 177 Bessie St., Grailton, N.S.W.

27E—C. J. Evelyn, "Claydon," Glenside, N.S.W.

Australia's Largest Stock of All Radio Components

Chokes
Coils
Condensers
Dials
Intermediate Transformers
Morse Equipment
Potentiometers
etc., etc.
Resistors
Soldering Irons
Speakers
Test Equipment
Valves
Pick-Ups
Power Transformers
etc., etc.

Obtainable from
Bloch & Gerber Ltd.

with which is associated
the
WELDON ELECTRIC SUPPLY CO.
46-48 YORK STREET, SYDNEY

G.P.O. Box 2282 M
Phones: MA 6291 (10 lines)

TECHNICALLY in the know

TO-DAY more than ever before, it is essential to keep fully informed on electronic matters.

RADIOTRON offers a technical service on valve applications that is unique in the radio world.

RADIOTRON TECHNICAL PUBLICATIONS INCLUDE:

- I.** "Radiotronics"—quarto size—20 pages per issue—sections devoted to DESIGN, THEORY, CIRCUITS and VALVE DATA—published every other month.
Handy filing covers are supplied with available back issues to "Radiotronics" subscribers.



- II.** Data Book—octavo size—150 sheets in loose leaf binder—comprehensive data on all Australian-made receiving types—new and revised sheets released periodically.



- III.** Valve Charts—quarto size—36 pages covering characteristics, classification tables, socket connections—special section on Australian-made types—comprehensive substitution directory.



plus first-hand knowledge on power valves and allied types, cathode ray tubes, the miniature range, circuits and associated components, as released. This information is just another service offered you by Radiotron.

keep posted on the latest developments in electronic research. Arrange for Radiotron Technical publications to reach you regularly through the mail. Full particulars are available on enquiry.

AMALGAMATED WIRELESS VALVE CO. PTY. LTD.
SALES PROMOTION AND ADVERTISING

47 YORK STREET [BOX 2516, G.P.O.], SYDNEY, N.S.W.

cial Affairs. This Committee has done much helpful work.

In the Federal, field, many of the changes in regulations recommended at the 1947 Convention have been introduced by the Postmaster General's Department as the results of the efforts of our Federal Executive.

Whilst it is regretted that we are little further ahead in meeting the Divisions into a single body—nation-wide W.I.A. governed by a Federal Council working to an all embracing constitution, your Council has left no stone unturned in striving to attain this end. This matter will again be pressed at the 1948 Federal Convention.

In spite of adverse comment in certain quarters, it is felt that we should be well satisfied with the decisions reached at the International, Telecommunications Union meeting held at Atlantic City. Few people realise the magnitude of the demands now made for frequencies by commercial and defence interests throughout the world. There is just one

point however, and that is that if we are to retain our present allocations, they must be put to good use. Furthermore we must have a body, such as W.I.A., Australia's national body and thus the mouthpiece of the Amateur in the Commonwealth, we cannot relax until we present 100 per cent. of our licensed amateurs.

To put our own house in order, it has become quite obvious that the Division is in need of (1) Rooms and a paid Secretary and that means finance. So far, we have been unable to solve this problem but suggest to all members that it be kept foremost in their mind for the future.

Membership.—As at the 20th February, 1948, the membership stood at 425, comprised of 24 city and 148 country members. During the last few months of the year, a membership drive was inaugurated, a circular letter to some 1000 members being derived from Institute membership together with an application form is being forwarded to all non licensees, a circular couched in similar terms being sent to all non members with their QSL cards whilst much publicity is given through the medium of the regular VEKWI broadcasts. Results so far show that the drive is having the desired effect and it is up to each and every member to do his or her part.

During the year, Mr. W. M. Moore (2HB) and Mr. W. Zeeh (2ACP) were elected to Honorary Life Membership in recognition of their sterling services to the Institute; Mr. Zeeh being a foundation member. Mr. Moore in acting as principal operator of VEKWI during the year has been of great assistance.

Disposals.—A big percentage of both city and country members have participated in the disposal of a considerable quantity of equipment from the Liquidation Commission. We desire to place on record our appreciation of the Queensland and Victorian Divisions co-operation in making it possible to our members, equipment from their respective States. As disclosed by the accounts all equipment has been passed to members at cost, a small margin to cover freight charges. The bulk of the work in handling this equipment has been ably borne by 2AC.

A.O.C.P. Classes.—Two A.O.C.P. Classes were conducted by the Division during the past twelve months—the first under the management of 2AGS and the course run in progress under 2BP. From the experience gained in earlier classes it was decided to extend the duration of the course from three to five months.

V.H.F. Section.—This section under the able leadership of 2BP with 2PWF as Secretary has made great progress. Meetings are now held on the second Friday of each month in the small hall at Science House, and the attendance has risen to high as 80. Some really first-class lectures have been provided whilst enthusiasts whilst the work of the section as a whole may be regarded as highly satisfactory.

Annual Dinner.—The Annual Dinner was held at the "Dunstan" on 7th August and attended by some 55 members and visitors. Distinguished guests included the Superintendent of Wireless Mr. Armstrong and the President of the Institution of Radio Engineers, Mr. B. H. Allen. It is a pity that regretted that due to the fact that a large number of members who had signified their intention to attend did not do so, the Division sustained a considerable financial loss as disclosed by the accounts.

Amendments to Articles of Association.—During the year, our Articles of Association were amended to permit the membership to be increased from 500 to 1,000 and to provide that our financial year ends on the last day of February annually. This date is now uniform to all Divisions.

QSL Bureau.—The number of QSL cards handled exceeded 5,000 per month and the Bureau closed the year just square financially. During the year, lack of envelopes and very erratic overseas mail made the running of the Bureau extremely difficult. The ideas of Council for improving the service to members had to be curtailed. The Council thanks those who came forward with envelopes when lack of them caused the work extremely anxious—2DN, 2ED, 20Z, 27B, 28C not to forget 2AGS who collected them between Melbourne and Perth and 2FA whose efforts enabled members to receive their Monthly Bulletin at a crucial period! The QSL Officer would like to record his appreciation of the help he received from 2RI when he was unable to be invaluable in preventing Bureau work from accumulating whenever there was a sudden rush of them. Our sincere thanks also go to Mrs. Corbin for her continued assistance in not only the QSL Bureau but also the despatch of the monthly bulletins.

Council. The vacancy on the Council caused by resignation of 27B on 10th February was not filled due to the proximity of the Annual General Meeting. 27B, regretfully tendered his resignation for business reasons. The Treasurer, 2DR, was also

compelled to resign for similar reasons, however his responsibilities were assumed by 2AND who has carried on in a most efficient manner.

The following table shows the attendance of Councilors at meetings, the total number being 123: Messrs B. H. Adams, 11, P. R. Anthony, 7, J. J. Baker, 10, M. J. Baker, 16, C. D. Hutchins, 4, M. J. Meyers, 10, 3 only.

In conclusion, we would like to reiterate the well chosen words of our 1947 President, Mr. B. H. Moore, in his report: "It is an accepted fact in both the amateur and professional radio world that a machine as you put it in it." It is generally believed that this extra effort called for from men who have not been paid for their work is an extraordinary. We thank you however, for your support and wish the new Council wherever they may be every success.

For the Council,
M. H. MEYERS, President.

TREASURER'S REPORT

The year 1947-8 has been a record year for the V.S.W. Division as an examination of the accounts and financial statements will show. There are, however, a few points which I would like to bring to your notice.

The amount of £58/8/- shown as outstanding subscriptions at first appearance seems rather high but as the February statements have not been sent out owing to pressure of work and the balancing of the books, it is estimated that the figure be reduced by £11/10/- leaving a balance of £47/10/- against which a reserve of £15 has been provided for the year.

The Disposals Account shows a balance of £44/8/8. There are, however, charges which have been incurred which have not yet been paid. These include freight and shipping charges of £10 on twenty 90R12 equipment from Brisbane. The amount of £10/8/8 is money paid in by members on order, but which has not yet been received.

A.O.C.P. Class No. 5 is still in progress and part of the amount of £20/0/0 held by the Class Manager will be spent in defraying Class expenses to complete the course. This will reduce the Class profit to below the £93/5/0 worth, but the Classes must be considered well worth while.

The £25 award for the best certificate was this Division's share in the cost of printing certificates which included various Constants, W.A.S., Member's Cup and EX O.C. award. It has been decided to write this amount off over a three year period during which the certificates will be used.

The rent paid in advance to Science House for the use of the hall for V.H.F. meetings, as well as the main hall for general meetings and covers the period March to December.

With the adoption of a uniform fiscal year and all subscriptions falling due on the last day of February, my work will be considerably simplified and I will be introducing a more comprehensive system of accounting than that in use at present. Also the work of sending out statements and recording membership data will be much easier. I should like to take this opportunity of urging all members to settle their accounts promptly and thus save me much unnecessary work in sending out extra statements.

B. H. ANDERSON,
Honorary Treasurer.

NORTH COAST AND TABELANDS

2GI experimenting with 8 1/2 Mc antenna, fortunate in having plenty of space for whymires. Is troubled with a.c. hash on 7 Mc during the day, but on 15 Mc, none. No need for a.c. line regulation, but uses auto transformer to keep the filaments under control. 2XO has been on vacation since visited 2RI, 2UE and Lismore gang; next stop Brisbane, 20Z, 27B, 28C, 29B, 29C, 29D, 29E and 2FA. 2ACP troubled with line hash, but heard occasionally on 7 Mc. 2XO on holidays from Lismore (University vacation) and was active on 7 Mc.

With only 5 watts 2ATH is going places on 7 Mc, using the QRP rig as a bedside companion on these winter nights. 2QR is on 14 Mc. Pressure of work keeping 2WOC off air; some gremlins in Receiver also. 2KX another one holidaying in Lismore. Heard from 29B, 29C, 29D, 29E, 29F and can be distinguished over any outfit. 2EAE on 7 Mc, but has some rig trouble, hope they are only temporary. 2H3 29B, 29C, 29D, 29E, 29F and 29G from 7 Mc transmissions. 2FA sends 2 1/2 Mc band interesting, using long wire. Has 2 1/2 phs and phone operating limited in early hours.

NEWCASTLE ZONE

2XQ ardent c.w. man using 6 to 10 watts on 7 Mc. 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

Low Drift Crystals
FOR
AMATEUR BANDS

ACCURACY 0.02% of
STATED FREQUENCY

3.5 M/C and 7 M/C
Unmounted .. £2 0 0
Mounted .. £2 10 0
12.5 and 14 M/C Fundamental Crystals, "Low Drift" Mounted only £5.

Spot Frequency Crystals
Prices on Application
Regrinds . . . £1 0 0
THESE PRICES DO NOT
INCLUDE SALES TAX.

Maxwell Howden

15 CLAREMONT CRES.,
CANTERBURY, E.7.

also very active on 28 Mc phone. 24QD taking advantage of dead nights on 28 Mc. by rearranging shack and putting incoming touches on new receiver. 24XA still hard on the 400 bands, still going on advance. 28Z not heard on the v.h.f.s. after cutting the v.h.f.s. the works. 2CS doing hard work cutting many and various bands on 19 gauge steel, how they the blaster! 20C did good work on the Trans-Trans Unit, should do well. 2TE getting out extremely well program from reports. 24Q was an 297 for a novelty code contest at Newcastle Club recently.

COALFIELDS AND LAKES ZONE.
24BZ was idling and has plans for complete rebuild over v.h.f.s. stations 20C active on 144 and getting through to Newcastle and Newcastle, keeps a live at 24 Mc. for anything unusual. 2YK nothing heard, 28 Mc. phone much. 24MU getting out fine at 28 Mc. phone. Judging from the DX log, 24 Mc. 2RF consistent on 50 Mc. and 24C on 144 Mc. 24N new on the Way War game. 24Y heard on 28 Mc. what's the latest outcome? 2XT what progress with the beam? 24P appears to be inactive. 24R active on 22 Mc. on the week ends and doing a bit on 50 Mc., not like looking Bob when handling difficult case. 24DT still doing things at 144 Mc. before the demise of West Newcastle, Wyong and Blue Mountains, on v.h.f.s. heard occasionally on 144 and 28 Mc. 24XK using a little on 28 Mc. and, hopes to have new rig on shortly. 24Z at moment getting 700 Kool steel tower (ex-B.A.A.F.), when finished will have more on top and several beams. 24YL taking things at 24 Mc. playing tennis, games on 7, 14 and 28 Mc. Please send news to 24YL the first week in each month.

WESTERN ZONE
Recent arrival in the Blue Mountains is 24F at Warimbo, busy with commercial, ticket at the moment. 24Y building super rig using two finals (812s), 24F active on 144 Mc. 24G sometimes leaves the v.h.f.s. for a QSO on 2 Mc. 24E conducting activity to 144 and 60 Mc. 24H at St. Mary's has a 80 m.p.h. gate. 24H building o.v.o. and super f.a. meter, also known as "The Volvo." 24CC settled down in new house at Coombesville, working nice DX on 14 Mc. 24MR has new v.h.f.s. working on 14, 28 Mc. 24OR and 24V not heard often. 24U still working 14 Mc. DX, also has a system of remote control. 24CT RCT trap a rabbit. 24G cable interest. 24L DX 24IX at 14, has the

nearest phone on all hands. 24V is re-building for QRO. 24N has game week up, a couple of Yess on 14 Mc. and the DX comes back switch the carrier on and off on 14 Mc. phone and back lines, come 24E been on balloons in V.h.f.s. still and with the 50V 20T trying to work some of the easy 28 Mc. 24I mentioned, but finds it far from easy going to hear him QRM. 24Q has the ideal QTH, no noise on any band and little traffic to cause location noise. 24H not heard much, concern tuning on fat lambert. 24T bowling them on 14 Mc. phone, when does the phone DX CC arrive. Bill 24LR was offered after a week at the back of 24Y's new rig.

SOUTH COAST AND TABLELANDS
The new Newlingham Club is making arrangements to affiliate with the W.I.A., 24W and 24K handling the problem. 24K has altered modulation system and power transformer doing good job at mod terms. 24W now on 7 Mc. with a water plate phone to Type A Mark 3, larger stage to be added, v.h.f.s. running two and two 50 watt vacuum tube go up from Canberra. 24U active on 50 Mc. regular contacts with 24J and 24A has been re-building for 144 Mc. 24Q believed to have worked South America on 7 Mc. etc., visited 24Ks usually early, off duty due to sickness. 24Y of Goulburn, used an 804 and 30 watts on 144.

T.A.C. MEETING NIGHTS
It is noted that the Technical Advisory Committee of the Victorian Division of the W.I.A. hold meetings at the Institute Rooms at 161 Queen Street, Melbourne, regularly through out the month.

All members and visitors are cordially invited and welcome to attend these meetings at which many technical discussions and demonstrations take place. Meeting nights are as follows:—
1st Tuesday Practical Work.
2nd Wednesday V.E.P. Group.
3rd Tuesday T.A.C. General Meeting.
4th Tuesday Practical Work.
5th Wednesday Receiver Group.
6th Tuesday Practical Work.

YKSWI will announce the programme for these individual meetings in forth coming brochures.

renew modulation, two mod units, on way 407s in 144. 24LZ were QTH, yet to be heard again on 24 Mc. v. 20W with 10 144. 24 Mc. works 24N and 24L 2MT working DX on 14 Mc. also will be building for v.h.f.s. 24A ed., busy on beams. 24M working World stations in the Zone, please stand by to contact 24D on 714 Mc after 24W broadcasts and supply the latest news.

SOUTHERN ZONE
24NG had parasite trouble in buffer stage and may reach a skilful in time sometime in the winter. 24PW and 24K both waiting for AIRT receiver, sorry to hear of serious illness of 24K's father, we hope for a speedy recovery. 24J listening around 24 Mc. but so far no signals were heard. 24LZ was by for Southern Zone stations on 714 Mc. and would be pleased to receive any new 24T waiting for 24K's and 24A's, in trying reveal mist instead of dynamic frequency, result was improved 60445. 24P got up conventional modulation interested in v.h.f.s. and hopes for 24N contacts. 24B putting up 144 and 28 Mc. beams, changing the 144 into a beam transmitter at a weekend working job, on the interim doing piece on a Type A Mark 2.

VICTORIA
At the June general meeting two firms were presented as entitled "Radio Antenna Fundamentals" and the other "The Construction and Behaviour of Radio Waves."

The first film illustrated, by means of animated drawings, the radiation of travelling waves on antennae and transmission lines, and the production of standing waves followed. Methods of feeding antennae with different types of transmission lines was illustrated and the effect of series inductance or capacitance on the electrical length of an antenna shown. Various types of aircraft antennae were also shown.

In the second film the propagation of radio waves was illustrated diagrammatically. The production of electromagnetic and electrostatic fields around the electric circuit led on to the production of electromagnetic radiation from an antenna. The film illustrated the propagation of ground waves and the reflection of waves from the ionosphere's layers and showed how fading occurs.

These films, on first principles of antennae and wave propagation, were an introduction to the subject of the talk to be given at the July general meeting by Dr. A. L. Green, who will discuss the application of non-linear periodicities to Amateur Radio Communication.

ATHAM TRADING CO. PTY. LTD.

393 FLINDERS STREET, MELBOURNE. MB 2701

VALVES
Large stocks English and American including:
1H6 14/6
807 12/6
EF50 12/6
EA50 6/0
1C7 12/6
1K7 12/6
1L5 10/0
6V6G 12/6
1852/6AC7 17/6
AERIAL COUPLING UNITS
Contains on 0-300 M/A R.F. Meter 3 Gong .0005, variable condenser, variable meters and resistors Price 29/6

Huge purchase of manufacturers stock. Brand new and too numerous for us to list
No. 19 Transceivers, 15 valves. Complete with valves, meter and power pack £12/10/0.
No. 11 Transceivers, without valves and power pack £2/15/0
FS6 Transceivers, second/H, with valves, less power pack £6/15/0

BOOKS RADIO BOOKS
Foundations of Wireless by Scroggie, cost 7/6. Our Price, 3/6.
Wireless Direction Finding by Keen. Cost 27/6. Our Price, 6/6.

The Cathode Ray Tubes at Work by Rider. Cost 23/6. Our price 10/-.
Cathode Ray Oscillographs by Reynar. Cost 10/6. Our price 6/-.
High Frequency Thermionic Tubes by Horvay. Cost 37/6. Our price 8/6.
Micro Wave Transmission by Slater. Cost 18/6. Our price, 8/6.
Ultra High Frequency Technique by Brainerd, Woodruff Kicker. Cost £3/2/-.
Our price 22/6.
R.A.A.F. Notes for Wireless Mechanics, 5/6

ELECTROLYTIC CONDENSERS
8 MFD. 350 V. Working, 3/- also.
COAXIAL CABLE
100 ohms 1/- yd.
75 ohms 9d. yd.
METERS
0-500 Micro Amp. .. 30/-
0-1.5 Amp. R.F. 2in. Weston 25/-
0/2 Amp. R.F. 2in. Weston 25/-
0/350 M/A R.F. 25/-
0/50 M/A 20/-

If you have Radio Apparatus to Sell, contact us. We are buyers.

MAIL ORDERS CAREFULLY AND PROMPTLY DESPATCHED

Amateur Radio, July, 1948

A.G. HEALING

LIMITED

MANUFACTURERS AND
DISTRIBUTORS FOR

Electrical and Testing Instruments for all purposes made to British Standard specifications. Each instrument is accurate, \pm or $-$, to 2 per cent., and parts are heavily plated to prevent corrosion even under tropical conditions. "Healing" Electrical Meters equal the best imported types and will give accurate service for long periods under the most exacting conditions.



No. 10A round production mounting Black Bakelite Case.

Type No. 30A 4" square semi-flush Black Bakelite Case



No. 20A 2 1/2" round flush mounting Black Bakelite Case.

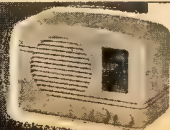
These, and all other Healing Radio Electrical Testing Units, are manufactured in our own factories and available from A. G. Healing Ltd.

OTHER INSTRUMENTS INCLUDE:

Oscillators — Multi-Testers — Signal Tracers, etc.



ALSO MANUFACTURERS AND DISTRIBUTORS FOR



Golden Voice RADIO

A. G. HEALING LTD., Melbourne, Sydney, Adelaide

WESTERN AUSTRALIAN DISTRIBUTOR: Clock's Household Utilities, 858 High Street, Perth. BRISBANE REPRESENTATIVE: H. K. Lane, Basement, A.M.P. Building, Queen Street, Brisbane. TASMANIAN REPRESENTATIVE: C. J. Irvine, P.O. Box 375, Launceston.

Successful candidates in the recent A.O.P. examination held in April are J. Young, T. J. Davies, D. A. Crowley, N. L. McGowan, R. S. Harris and E. W. Watson. We extend our congratulations and sincerely hope that these Ham members or prospective members.

I am in receipt of a letter of congratulation from GJE thanking me for my publicity efforts in connection with the Glamorg Radio Club. I modestly thank him and hasten to remind him that I have heard no more of the Club, what about it Ted? Isn't it strange, no matter what I do for the W.L.A. the Divisional Secretary can't get around to sending me any sort of a letter, and believe me I have tried hard enough.

The other night a VKS was worked in the middle of the c.w. end of 14 Mc. talking all and sundry about the mass of technical gear that adorned his shack. It made me feel so inferior as I gazed at the mediocre collection of junk lying in my shack. I clattered up however when it occurred to me that at least I had a crystal for both phone and c.w. end of the band.

SWL was successful in a recent broadcast operator's examination. Nice, nice work Wick. Me oh my, I am getting old, I can remember when I used to kick him in the shins and dumb because he was late in getting my lunch.

I take a dim view of those two well known Hams who were heard to say on the high end of 14 Mc. recently, "Be careful George, the men are on the air and is sure to be listening to all we say." I'll say I did, and will I use it? Not much I would.

GOD is just recovering from an attack of the vapours or something, because a visitor to his shack later told someone else that George's phone had definite signs of downward modulation. Do you think George went into north of a stop-please when it was repeated back to him. Now he knows what I felt like when the same person put that one over on me. You beuat.

Heard SAC working on 7 and 14 Mc. with c.w. using a Type 3 Mark 2. Outburst that he was operating inside a caravan which is now his shack. GRH is in thrives of re-building at the time of writing, push butt 807s I believe in the final. SLP is reported as having gone to Angaston on 20th May. Was heard in Adelaide with a good signal from a portable F80 loaned to him by GCB. My latest information about GRH is to the effect that

he is still on the sick list at home, hope that you are OK now GCB.

XXO and SZR seem to have the secret of snoring the phone DX at the high end of 14 Mc. Even where the conditions are real poor these two experts scoop up anything which pops up. What's the secret of success fellows? SOU is to transfer to VKS for six months, he will be on the air from 210T and 515 occasionally. Hope we can contact sometime Giff.

SWL has obtained with a photograph of the gathering at Crystal Brook reported in last month's notes. A handsome looking gang if I may say so. Thanks Les. SWL reckons that this QSL business is just too easy. He had not even been on the air when he received a QSL from J2LSA. They do not come that easy to me.

The phonetic alphabet is undoubtedly a great thing for communicating by means of phone signals, and the average Ham uses it with his own opinion as to the right phonetics to use. The many and varied types heard on the air are more often humorous than not. In fact Ron Kelly (5LW) always gave us a good laugh with his H—rattle-snake H—ordinary-snake H—snake H—snake. Now that it funny as well as clever, but when a VKS Ham is heard to give his name as "P—patrol H—horrible I—illiterate L—lousy, then he is neither being funny nor humorous, but is only bringing this grand old hobby of ours into disrepute. Don't forget gang, lots of people hear us on the air who are not as tolerant as our Advisory Committee.

SLA is a newcomer to the air, but is making his presence felt already on 14 Mc. Has run up some nice DX and is only using low power too. Is about to join the W.L.A. If my persuasion is successful. Yes, he works on the same shift as I do. Six of us all told, maybe I should have said all six of us were on the pay sheet and left it at that. Listen gang, don't forget that little part of regulation 134 about giving your call sign every five minutes, one of two of the boys have been blistered for that lately.

Regret to announce that one of my best spies in 5LG stepped on a piece of his beam where there can't any wood. Leth made a perfect five point landing, but has developed a complex against beams of any description. Understand that the descriptive form of sweet words that issued from him would have put a professor of languages (no not you 5LW, sit down) to shame. 5HQ was looking for my blood at the last general meeting because

of a misprint in last May's magazine. I hasten to rectify it, and say that it was meant for NFQ, and am prepared to take my oath that Bill has never been near Somerset. OK Mrs. 5HQ?

Joe McAllister did a wonderful efficient job of "putting me in" with the office staff at my place of work recently. When I arrived to take over my shift, the sweet young thing on the switchboard said "there is a letter in the rack for you from someone in the W.L.A." I thanked her in my best wolly manner and was amazed to have her say "Mr. Parsons, do your friend call you Puss?" I shook this indignation off as best I could, but I notice that as I walk around the office these days that a decided coldness has developed among the female staff. Marmaduke, who works at the hair dresser's on the floor beneath, shows a decided tendency to linger in my presence in the lifts, as don't suppose I should worry. Thank you Joe, I shall endeavour to reciprocate, both to you and Mr. X whom I suspect was really behind it.

I am sorry to hear that Joe Kilgariff is on the sick list, but hope by now that he is on the road to recovery. SFL has consented to act as stand-in for the traffic schedules, pending Joe's return. The thanks of the VKS Division are due to the VKS Disposal Committee for the opportunity of participating in the recent stand-in.

My spies tell me that there has arisen a new method of DX hunting. First get a fellow Ham with a good beam, have him work the DX and then call you into the QSO. Easy isn't it? Believe 5LW is a sponsor to this new method, say Jim, when they call you in, what about calling me in too, I have no sense of shame.

When you are driving in a taxi sometime and you say to the driver "what does the meter say But," you don't be surprised if he should say "well, QRM is bad on 14 Mc. tonight." If this happens it will probably be 5HQ. How's business Bill?

My, my, to what depths will some Hams sink in an endeavour to secure some new equipment. 5XL gathered up the new Philco's at the monthly meeting and carried it away with some junk he had bought that night. Believe 5AW nearly had hysterics when he saw Gordon trying to shove the Philco's up his jumper. Play the game you cad!

The proposed field day, possibly to be held at Clon, is being supervised by a representative suggested by the country gang through their representative 5LJ, was well received at the general meeting, and more should be heard of it.

While They Last!

BARGAINS!

JUNIOR HIGH DISCHARGE CELL TESTER

Tells you all you want to know about a doubtful battery. Each Tester is guaranteed accurate and is suitable for both car and radio batteries. As illustrated 75/- each.



Crystals 3500 K/C 14000 K/C	25/- each
Photo Electric Cells, CE2, CE3, CE7	30/- each
Neon Pilot Lamps, 1 watt B/C 240 volts	2/6 each, 21/- dozen
Black Condensers, 1 mfd. 3000 V.	30/- each
Trutrack Cutting Head	37/6 each

* Note.—Above prices are net. Freight extra. On standard lines we quote special prices to Bone Fide Amateur Transmitters.

HomeCRAFTS Pty. Ltd.

100 CLARENCE STREET, SYDNEY

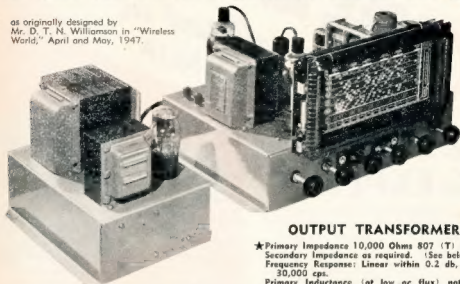
26 HUNTER STREET, NEWCASTLE

RED  LINE

MATCHED KITS

for THE NEGATIVE FEEDBACK AMPLIFIER ★

☆ as originally designed by
Mr. D. T. N. Williamson in "Wireless
World," April and May, 1947.



★ CONDENSER INPUT POWER SUPPLY

	Type No.	Price
1 P/Trans	20453	£3 16 1
1 Choke	201515	£1 11 10
1 Choke	50825	£1 7 7

CHOKES INPUT POWER SUPPLY

(Radiotronics Circuit A515)

	Type No.	Price
1 P/Trans	25563	£4 18 8
1 Choke	102512	£1 16 1
1 Choke	201515	£1 11 10
1 Choke	50825	£1 7 7

OUTPUT TRANSFORMER

★ Primary Impedance 10,000 Ohms 807 (T) P.P.
Secondary Impedance as required. (See below).
Frequency Response: Linear within 0.2 db, 20 cps. to
30,000 cps.
Primary Inductance (at low ac flux) not less than
125 Henries.
Leakage Inductance: 17 Millihenries.
Insertion Loss: 0.4 Decibels.
This transformer may be used to obtain a gain reduction
of up to 25 db across 4 Stages in a suitable negative
feedback circuit. ★

★ OUTPUT TRANSFORMERS

AF8	8 ohm	V/Coil
AF15	15 ohm	V/Coil
AF10	500 ohm	Line
	or as specified.	

PRICE £5/15/2

RED LINE EQUIPMENT PTY. LTD.

INCORPORATING SWALES & SWANN

Workshops:

2 Coates Lane, Melbourne

Cent. 4773.



City Office:

157 Elizabeth St., Melbourne

MU 6895 (3 lines)

A GUARANTEE OF DEPENDABILITY

AEGIS KC4

4-Band Tuning Unit

The most advanced
COIL ASSEMBLY
ever offered in
AUSTRALIA

Here's something for
the EXPERTS

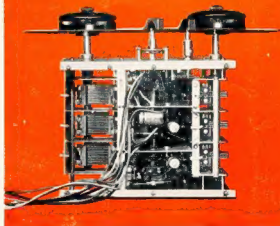
The new Aegis 4-band, bandspread tuning unit illustrated at right is definitely the answer for the amateur who desires to build his own communication receiver. Here are the plain facts of this latest Aegis triumph:

4 Wave Bands		Band Spread—5 Bands	
550 Kc. — 1500 Kc.		3.5 — 4.0 Mc.	80 Metres
1500 Mc. — 4 Mc.		6.9 — 7.3 Mc.	40 Metres
4 Mc. — 11 Mc.		14.0 — 14.4 Mc.	20 Metres
11 Mc. — 30 Mc.		20.5 — 22.0 Mc.	15 Metres
		27.0 — 30.0 Mc.	10 Metres

Actually constructed in 3 sub-sections comprising R.F., Converter and Oscillator stages. Finally assembled in one unit, which incorporates Band Set and Band Spread condensers, together with 2 Slow Motion Drive Assemblies 55/1 and directly calibrated Plastic Dial. Valve Sockets for R.F. (6SK7GT), Mixer (6AC7) and separate oscillator (6SK7GT) stages are already wired. Concentric air trimmers are used throughout, and the 6 section "Oak" Type Switch includes shunting banks for all coils not in use. Aerial Trimmer is brought out to front panel with $\frac{1}{2}$ " shaft. Screws for iron core adjustment in all coils are readily accessible from top of unit, as are also the Trimmer Screws.

For use with the KC4, we recommend Aegis I.F.'s Type Nos. J22 and J23, specifically designed for communication work. A complete set of blueprints for connecting this unit plus a most comprehensive communications Receiver Circuit are supplied with each Kit.

See your distributor right away for your Aegis KC4 Coil Assembly.



AEGIS
MANUFACTURING CO. PTY. LTD.
208 LIT. LONSDALE ST. MELB.
PHONE CENT 4414, 5171

DISTRIBUTORS IN ALL STATES

MELBOURNE:

Lawrence & Hanson
Electrical Pty. Ltd.
Replacement Parts
Pty. Ltd.
Vallis Electrical &
Radio Pty. Ltd.
Homecrafts Pty. Ltd.
J. H. McGrath & Co.

SYDNEY:

John Martin Pty. Ltd.
George Brown & Co.
Pty. Ltd.
Fax & Macgillycuddy
Ltd.
Caok Bros. Pty. Ltd.

ADELAIDE:

George Procter
(Factory Representative)
Newton, McLaren Ltd.
A. G. Healing Ltd.
Harris, Scarle Ltd.
Oliver J. Nilsen &
Co. Ltd.
Gerard & Goodman
Ltd.

BRISBANE:

Chandlers Pty. Ltd.
A. E. Harrold Pty.
Ltd.
B. Martin Pty. Ltd.

PERTH:
Nicholsens Ltd.

TASMANIA:

Lawrence & Hanson
Electrical Pty. Ltd.
(Hobart)

Lawrence & Hanson
Electrical Pty. Ltd.
(Launceston)